

# The National Locksmith®

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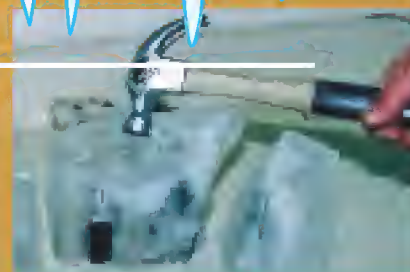
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March 1996  
Volume 67, No. 3

## Padlock Torture Testing



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plus...  
ISC West  
Bonus  
Supplement





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*E0001 - E50000*

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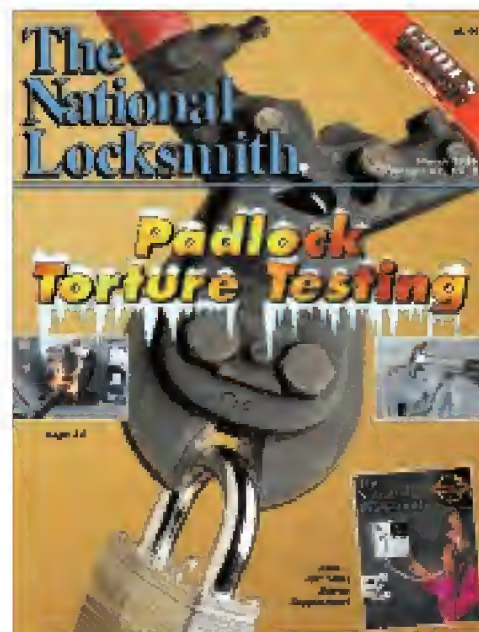
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TEST DRIVE



### On The Cover

The true test of any security device is its ability to thwart the most abusive man-made and environmental punishment imaginable, and in the end, still operate.

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# Commentary

**I**n this month's issue, we played some nasty tricks on a bunch of unsuspecting padlocks. This kind of lock often gets exposed to awful weather conditions and to vandalism of various kinds. We wanted to see how some quality locks would stand up to some serious abuse...we're talking fire, ice, salt and physical attack here.

We were surprised to find that quality padlocks will tolerate and withstand a great deal more abuse than we had imagined. For example, our unscientific salt test consisted of soaking for a week in a very strong brine solution, and all the locks functioned afterward. The surprising part was that we used steel padlocks, not intended to tolerate salt environments. Brass is usually recommended in this instance, however, our steel locks performed well.

I think the lessons learned from these informal tests were, number one, it is really *fun* to beat up on padlocks; and number two, the five dollar hardware store padlock doesn't stand a chance in the real world. Be sure your customers know the difference!



**Marc Goldberg**  
Editor/Publisher

**J**ust a reminder that our new Insta-Card™ computer program is now available. It runs on Windows and Windows 95 allowing you to generate any code card for your 1200CM™ in just a moment. The advantage is that you can print any code card past, present or future. You never again have to wait for availability of a new card. Plus, if you ever misplace a card, who cares? Crank out a new one in just a minute! Considering that there are about 500 cards now available, you will find the cost of the software to be economical. In fact, if you use it to make all the currently available cards, each card would only have cost you 36 cents. Now that's economy!

**C**ongratulations go out to Bill Reed and Steve Young who are forming a new venture together. I know you will be seeing a lot more of Bill starting very soon. Bill is itching to get back out among the locksmiths and he should be announcing a schedule of events soon. Best of luck guys! Also congratulations to Art Director Jim Darow and his wife DeAnn on the birth of lil' baby Karlee Darow. Best wishes!

**F**inally, tests for the test articles are now being handled differently than before. Please see pages 27-30 for this quarter's tests and further information. Now you will be able to grade your own tests and more easily apply for your certificates of completion.

**America Online: NATL LOCK**  
Use the above address if you are on AOL.

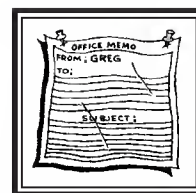
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*Marc Goldberg*

**Random  
notes  
from  
your  
editor.**



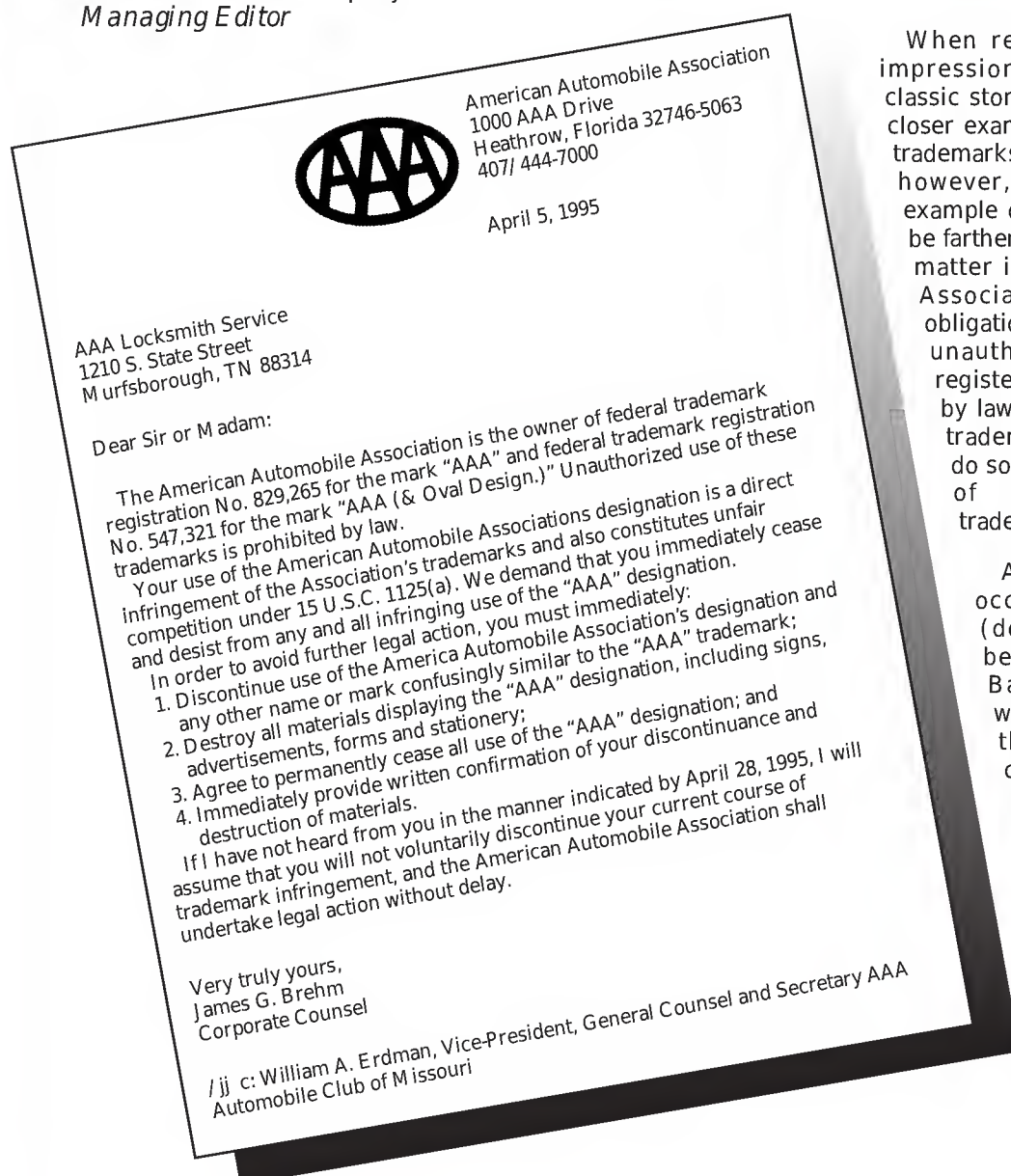
# Mango's Message



Greg Mango  
Managing Editor

## Stay away, from "AAA"

The name "AAA" has been — and is — symbolically used as a company designation since the advent of business. There is probably no more used, or abused, name, designation or reference, — other than A-1 and ABC — than AAA. Scanning through the Yellow pages alone, I counted over 200 different companies using AAA in their name. The American Automobile Association, has used AAA as its calling designation for emergency road service since 1916. The mark was registered as such in 1965. It is by far the most recognized and associated use of the AAA logo. If your company name or logo includes the letters AAA in it, or you are contemplating choosing a name which include the letters AAA, and you provide automotive or locksmith services, you may be interested in the following letter that was sent to a fellow locksmith. Actual company location has been changed to protect the accused party...



When reading this letter, the first impression that comes to mind is the classic story of David and Goliath. Upon closer examination of the laws governing trademarks and trademark infringement, however, you will soon find that the example of David and Goliath, couldn't be farther from the truth. The fact of the matter is, the American Automobile Association (AAA) has a legal obligation to aggressively prevent any unauthorized use of its federally-registered trademark. AAA is bound by law to vehemently defend against trademark infringement. Failure to do so can potentially lead to the loss of its nationally-recognized trademark.

An example of a trademark loss occurred when Dr. Bayer, (developer of Bayer aspirin) began to market aspirin. Dr. Bayer had a trademark for the word *aspirin*. The popularity of the product was such that comparable products were referred to as aspirin. The Bayer Company did nothing to prevent this occurrence, effectively abandoning its aspirin trademark. Since Bayer did not take measures to aggressively protect the aspirin trademark, the courts decided that the word became a generic word and was no longer entitled to protection as a trademark. Under the law,

*Continued on page 8*

**Continued from page 6**

this is known as **"estoppel by laches,"** which means the failure to do something which should be done or to claim or enforce a right at a proper time.

Aspirin is not the only example of a trademark to suffer such a fate. Cornflakes, Shredded Wheat, Thermos, Linoleum and scores of other products were once highly-valued trademarks; however, all were insufficiently protected and ultimately lost. All are now considered generic terms describing a type of product, not a specific product's manufacturer, originator or owner.

The primary governing trademark laws fall under the **"Lanham Act."** The purpose of the Lanham Act (United States Code, Title 15, Chapter 22) is: *to protect the public so it may buy a product bearing a particular trademark with confidence that it will get the product it wants. It also protects the holder of the trademarks investment in time and money from its misappropriation by pirates and cheats.*

The touchstone of trademark infringement under the Lanham Act, is: **"likelihood of confusion."** Factors to be considered in determining likelihood of confusion are: *the degree of resemblance between the trademark in appearance, pronunciation, translation and suggestiveness.*

Given that interpretation, should this case go to court, the prosecuting counsel for AAA is sure to contend that the similarity in *appearance* and *pronunciation*, of AAA Locksmith Service is apparent. They would further point out that the *translation* and *suggestiveness* of AAA Locksmith Service can cause a *likelihood of confusion* in the public's mind or in the minds of AAA members. This suggests that "AAA Locksmith Service" can be confused as being affiliated with "AAA," when in fact it is not.

Now you may be asking yourself, why doesn't the American Automobile Association send everyone using AAA in its name a cease and desist notification? If there is a direct correlation in goods or services provided by the infringing party, AAA *can* cause them to cease and desist use of its federally-registered trademark. Since AAA and AAA Locksmith Service both provide automobile service, a direct conflict of interest is caused. Should the business have been "AAA Roofing" or "AAA Carpets" or "AAA Florist" — goods or services AAA does not provide — AAA would not (and could not) have taken this action. Trademark infringement only applies when there is a correlation in goods or services provided by the trademark infringing party, ultimately causing a likelihood of confusion.

I contacted the American Automobile Association, to allow them the opportunity to express the association's position in this matter. Barbara Crystal, a spokesperson for AAA, confirmed the obligation and responsibility under trademark law to take appropriate action in the attempt to protect AAA's federally-registered trademark. She wants to assure everyone that the cease and desist measures taken by the American Automobile Association, are in no way an attempt to harass, get money, or cause intentional damage to anyone. This action is a requirement for everyone — not just AAA — that desires to maintain control and possession of its registered trademark when infringement is imminent.

Crystal went on to say, "What the American Automobile Association has done in other cases where there has been trademark infringement, is tell the company to either add an "A" or drop an "A" from its name." This action would nullify any trademark infringement possibility.

Changing a company name may be easier said than done, but its also cheaper than finding yourself in the tangled web of our justice system with a law suit. A law suit, in which the odds are pretty darn good you will end up with the short end of the stick! Is it worth that risk just to be positioned at the front of the yellow pages? Only you can decide that!

As for the outcome between AAA Locksmith and the American Automobile Association, AAA Locksmith has changed its name and all printed matter (at the initial cost of \$4,000 - \$5,000) to: ASAP Locksmith!

If you want further information about patents and trademarks, contact the Patent & Trademark Help Center in Washington, D.C., at 703/ 308-4357.

M A R C H 1 9 9 6

# Letters

*The National Locksmith* is interested in your view. We do reserve the right to edit for clarity and length.

## Thank You

Just a brief note to express my sincere appreciation for filling my undelivered subscription of Reeds Security Reporter.

I think that your action was a fine gesture and you have earned my continuing subscription to your publication.

*Richard Boynton*  
North Carolina

## BMW Under Control

Sunday night I had the opportunity to tackle a new '95 BMW 525i. The keys were locked in the car. I use Steve Young's tools and manual and everything I had read said "the car cannot be deadlocked if the keys are locked in." WRONG! I went under the bellcrank on the passengers door and pulled up the lock button, umpteen times, the car would not unlock. Finally after about an hour, I got it unlocked for a very grateful customer. (I was not the first to try and open it.)

In talking to Steve since, he

informed me that BMW changed the locks and yes, it did deadlocked. It apparently deadlocks itself even when it has not been locked with a key. The fact that the button raised up - and believe me I had it so high you could almost see underneath it - the car remained locked. Now, I did open it and here's what I observed. Shortly after I had made one or two attempts, the interior lights turned on for maybe 5 or 10 seconds, then turned off. This happened repeatedly. It wasn't too obvious because I was working next to a garage that had a motion sensor light that also kept going on and off. When I finally opened the car, I was aware of three conditions.

1. I had been working on it for close to an hour. - Possibly the timer releases after a period of time if the keys are in the ignition.

2. I was firmly under the bell crank on the successful try.

3. The interior lights came on just as I pulled up on the bell crank and pulled the door handle. I suspect that this really was the key!

I don't get many opportunities to do "Beamers" but I am sharing this so you know they can be opened. PLEASE if you have the opportunity to try one let me know what happens. Especially if you observe the interior lights doing the same thing and if it opens when the light comes on.

*Chuck Donnelly*  
New York

## Cross Country Scam?

Our shop has received three calls from Cross Country Motor Club, for request to open locked cars. Every time we call for payment we get the run around, do this, do that, fill out



these papers and return. Months later still no payments, just excuses. Beware of them. We believe they're a rip-off, since they never call again after requesting payment.

*Brian E. Adkins*  
California

## All The Wrong Reasons

I'm writing in response to a letter from Jack (no last name,) entitled "No Degree For Me," in the January issue. Where do I begin? First of all, if the writer thinks that letters after your name "Don't mean a damn thing," he may be interested to know that Jim Glazier, CML, Education Chairman for ALOA, stated that many insurance companies now (or soon will) require locksmiths to be a RL, CRL or better, before they can get coverage. Also watch for airbag certification to be a requirement by most insurers in the near future for anyone who wants to be covered while working on them.

Don't get me wrong. I'm not saying that the PRP is the only way to judge a locksmith. A good friend of mine who knows more about

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**1533 Burgundy Parkway**  
**Streamwood, IL 60107**  
**Attn: Editor**



locksmithing than I'll probably ever know, is having a hard time passing the PRP because he just doesn't do well on tests, but at least he's not afraid to try. Could it be that Jack is just afraid to try? If you really want to find out what you DON'T know, take the PRP. This is a hidden benefit of the PRP Program.

As far as elevating one's status as a locksmith, the only way to do that is through education. This is something else that Jack apparently doesn't think he needs. Anyone who thinks that a three week course - fifteen years ago - is all the education that a person needs to practice locksmithing, has got to be an extremely naive individual. Continuing education in an industry such as ours, IS A MUST.

I'm sorry that the writer has had bad experiences with locksmith organizations in the past. Maybe he joined them for the wrong reasons. If you are joining a locksmith association for no other reason than what it can do for you, you're going in with the wrong attitude in the first place. Try joining because of what you can do for your fellow locksmiths and the industry as a whole. We reap what we sow.

In closing, I must add that there are few things less satisfying in life than spending much more time on a job than I anticipated, because someone who thought that he didn't need training was there before me.

Bob De Weese, CPL  
Baltimore

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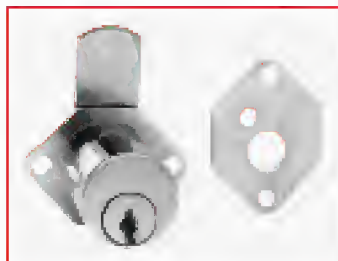
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## SECURITY CAFÉ

### National Cabinet Re-Keyable Cam Locks



National Cabinet Lock has introduced a new easily re-keyable pin tumbler cam lock for RH or LH doors and drawers. The locks are designed with the National Cabinet Lock "Advantage Plus" re-keying feature. After removal of the cam, a 5/64" allen wrench is all that is needed to remove the cylinder and plug from the mounting plate for re-keying. The mounting plate remains fastened by two screws to the cabinet.

The "Advantage Plus" feature saves time, especially during multiple re-keying jobs, because the cylinder can be re-keyed and reinstalled without removing the entire lock from the structure.

**For FREE Information**  
Circle 270 on Rapid Reply

### Dremel's New MultiPro Cordless

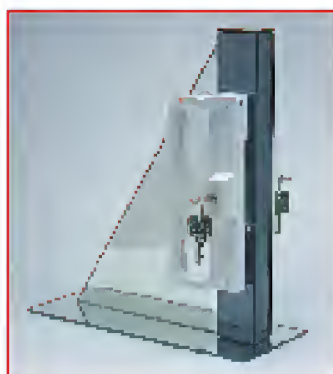
The most versatile, hand-held tool goes cordless with the introduction of Dremel's 7700 Two Speed MultiPro Cordless. A three-hour battery pack makes the tool completely portable and allows users the freedom to



accomplish projects wherever they are-in the backyard, the garage or even on a boat.

The 7700 Cordless kit is fully stocked with 25 bit accessories to help consumers undertake a multitude of tasks in and around the home-from cutting or shaping metal, plastic or wood to polishing and cleaning metal surfaces. The product is equipped with a knurled collet nut that accepts Dremel accessories up to 1/8" shank, with additional collets of 1/32", 1/16" and 3/32" available.

mounted lock in less than 20 minutes.



**For FREE Information**  
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## Security Café

### DROP IN FOR TOOLS, TECHNOLOGY & EQUIPMENT

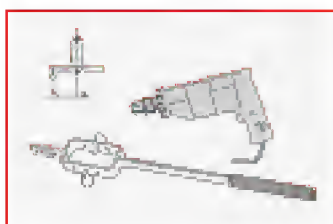
The MultiPro Cordless operates at two speeds-7,500 and 15,000 rpm. Users can select the amount of power needed for each individual project by simply moving the slide switch on the top of the tool.

**For FREE Information**  
Circle 274 on Rapid Reply

### Patio Intel-X

Patio Intel-X is a new concept in patio door locks. It takes all K.I.K. Schlage compatible cylinder. It has 1" reversible hook, and vertical rod upgrade will be available in the near future. The best feature of the Patio-Intel-X is that it can replace a surface

### Keedex's safe drill rig



Keedex Mfg. now has an optional collar that is compatible with many of the Milwaukee® brand drill motors, available for the K-14 Safebuster drill rig. The standard K-14 collar is designed for drills such as the Bosch, with a diameter of 1.69" to 1.72". The optional collar works with Mil-

waukee® drills that have a diameter of approximately 1.80". This optional collar can be substituted at no additional charge. The K-14 Safebuster is one of the most affordably priced safe drill rigs.

**For FREE Information**  
Circle 280 on Rapid Reply

### Lockmasters®, Inc. New Innovative Impressioning Tool

Even under the best of circumstances, it can be difficult to see the mark left by the pins in the impressioning process. This new series of Impress-Eze® Blanks, has been designed to allow more definitive marking of the blade, as well as effortless filing due to the softer material.



A lot of trial and error research went into the development of the proper impressioning alloy; one which is soft enough to mark and file easily, but tough enough to stand up to the abuse of impressioning.

The key has been milled in a fashion that will give the alloy material support during the impressioning process. The depth of the milling equates to the deepest depth, therefore, you will never have to file deeper than the alloy. Also, the brass support fingers give you visual orientation of the pin chamber positions so your cuts can be properly centered.

**For FREE Information**  
Circle 279 on Rapid Reply

TNL





## GENERAL SECURITY

Test Article #115

# Interchangeable Core Locks BEST Style

Part 1

by **Sal Dulcamaro**

This will be the first in a series of articles on interchangeable core locks. The first article in the series will be about Best style IC locks. It would seem a logical choice since the very first IC lock invented was the creation of Walter Best, fairly early in this century.

Other brands (although not all) of IC locks will be covered in future articles. Most of the future articles will be devoted to a single brand and type of IC lock. This first article will be the exception, entitled "Best style" rather than just "Best brand" IC locks.

As this article unfolds, we will deal with a few other brands of IC locks other than "Best". Being the first, Best held the original IC patent and was able to create a significant market for this type of locking device. After the original patents expired, other companies tried to compete for that same market. The other brands that will be referred to in this article were effectively copy cats or clones of the original Best design. These other brands will operate (and be serviced) in almost identical manner to the original Best IC locks, with a few exceptions.

### IC- What's That?

Before we go into the specifics of the Best style IC locks, let's review some terminology. The abbreviation IC, is probably the most misused and misunderstood term in the lock/security industry's lexicon. The "I" stands for "interchangeable," and the "C" stands for "core."

Most of us have seen or heard the term "IC Core." The term "IC Core" stands for "Interchangeable Core Core". It is an unfortunate redundancy. Many of us use that mistaken term often or all the time. It is a bad habit that is sometimes very difficult to shake. It's not unlike using the erroneous term "VIN number", when we know that the "N" in "VIN" already stands for the word "number." Sometimes the wrong term seems to

sound more natural than the proper term.

Many locksmiths use the term "IC Core" as a bad habit and actually understand the correct terminology. Other locksmiths, however, hear the wrong term so much that they think the "I" in "IC" stands for "inter", and the "C" stands for "changeable."

### Interchangeable Core Locks

The interchangeable core lock is a very specialized lock. It is unlike other types of locks because the lock cylinder can be removed and replaced without any disassembly of the lock mechanism, and it requires no special tools. The only thing required is a specially cut key (usually called the control key) to activate an element within the lock cylinder which allows the cylinder or "core" to be removed or installed.

The core itself is designed to be a free standing lock cylinder with all the normal moving parts including the tumblers, tumbler springs, etc... It is usually tied together with a separate component called the housing. To be truly interchangeable (as opposed to just "removable") the component known as the "core" must be sufficiently standardized to fit into housings used on a variety of different locking devices. The housing that accepts an interchangeable core might be part of key-in-knob or key-in-lever lock mechanism. Or the housing may be used in place of a standard mortise or rim cylinder and attached to a mortise lockset or some auxiliary locking device. The housing itself will generally resemble a normal lockset except for a very obvious "figure 8" shaped

cavity where you would normally see a lock cylinder. An interchangeable core should be able to fit into the housings of any lockset within the lock company's product line.

### Best Style IC Locks

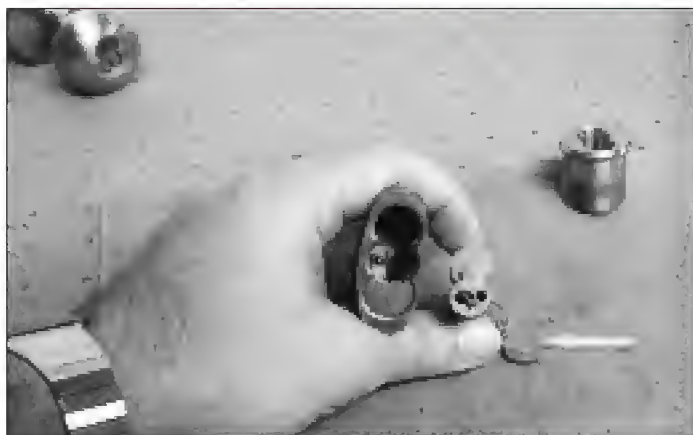
The (at the time) unique concept of interchangeable core locks was designed by the inventor Walter Best, in the early 1900's. Figure 1 shows a sampling of lock products made by the Best Lock Co., that accept the Best style interchangeable core. You can see a key-in-knob lock, a padlock, and a mortise cylinder. They all contain an interchangeable core that can be easily removed with a control key and can be reinstalled in any other of the three locks.



1 - A sampling of lock products made by the Best Lock Co.



8 - Top view of the sleeve, notice the core has seven pin chambers



**2 - The figure 8 shaped cavity within the pad-lock that acts as the housing for a Best I-Core**

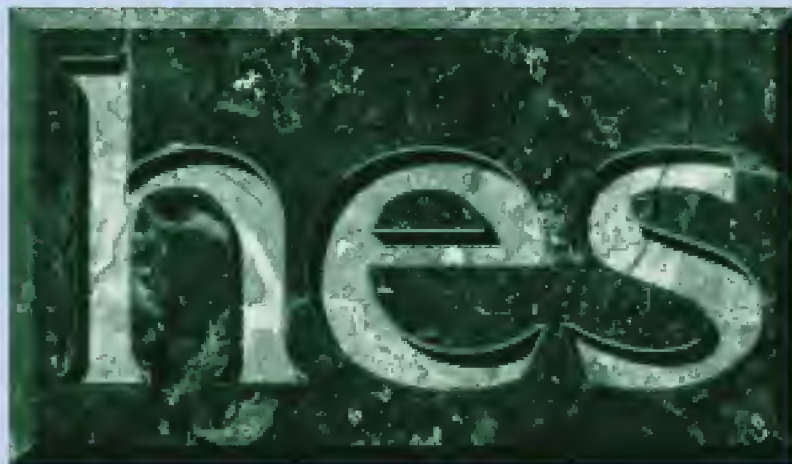


**3 - The cam has been removed to look through the back of the housing**

Figure 2 shows the "figure 8" shaped cavity within the padlock that acts as the housing for a Best I-Core and the back view of the core itself with a matching shape. Within the housing cavity can be seen the two actuating pins that fit into the two drilled holes in the back of every Best style I-Core. The locking lug of the core has been rotated inward (with the control key), which allowed the core to be removed from its housing and which will allow the core to be reinserted into this or any other housing. The tail pieces or

cams on rim or mortise type IC housings are often riveted or otherwise permanently attached. In figure 3 the cam has been removed from this mortise type housing so you can look through the hole in the back of the housing. The surface inside the housing that grabs onto the locking lug and retains the core in the housing can be just barely seen looking in the hole off to the right side. Also in the picture, the control key has been turned back to extend the lug so that the core is in the locked or retained position.

Figure 4 shows an angled front and part left side view of an I-Core manufactured by Arrow Lock Co. Arrow is one of a number of different brands that I referred to earlier that makes what is effectively a clone or look alike I-Core. It can be used as a replacement for a core made by Best. Some of the other companies that make cores designed to fit into Best style housings include: Falcon, KABA Peaks and KSP.



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**4 - An I-Core manufactured by the Arrow Lock Co.**



**5 - The control key has been rotated 15 degrees clockwise to move the lug**



**6 - The core taken apart to see the individual components**



**7 - The sleeve and plug fit together as such**

In figure 4, you can see the locking lug extended and visible along the left side of the core. The control key is inserted into the keyway but not yet rotated to draw in the lug.

In figure 5, the control key has been rotated about 15 degrees clockwise to move the lug inward which would allow removal from or insertion into a compatible housing. You don't have to guess how far you need to rotate the control key. The motion is self limiting. When you turn as far as you can to the right (and that should be 15 degrees,) the lug will be pulled in and the core will be ready to insert or remove. All Best original and other Best style (those brands mentioned above) cores will have the same clockwise control key rotation.

#### **Core Construction**

The core is specially constructed to act very much like a standard lock cylinder, but at the same time do something that a standard cylinder cannot do. A standard lock cylinder is usually made up of the lock case or shell and the plug. When the correct keys are used, the pins line up at the shear line (i.e. even with the top surface of the plug) and the key will turn to operate the lock. If a standard lock cylinder is to be removed from a lockset, full or partial disassembly of the lockset is usually required to gain access.

The primary purpose of the IC lock is to allow a non-technician to change a lock cylinder. To accomplish that goal, the cylinder removal method has to be close to idiot proof. That means that no disassembly of the lockset should be required and no special tools should be needed.

That goal is accomplished by a specially constructed lock cylinder, and the use of specially designed locksets which will accept and operate with those special lock cylinders. Figure 6 shows a core taken apart to see the individual components that make it work.

Held in my hand from left to right are the shell and sleeve. The sleeve is the component that includes the lug which retains the core in any particular housing. Just to the right of my hand is the plug. The plug for an IC lock cylinder will look pretty much like the plug from any other lock cylinder. The parts held in my hand are the parts that are most dramatically different than those found in a standard lock cylinder.

The sleeve is the critical component of an IC lock cylinder that allows it to be removed or installed with merely a specially cut key. The sleeve, with its very thin walls, fits over the plug but inside the shell. Figure 7 shows how those three parts fit together.

The plug provides the familiar shear line which we see in any pin tumbler lock. All operating keys (change keys or any level master keys) will use that shear line. The sleeve creates an entirely separate and independent shear line, above the plug's shear line. The control key raises tumblers even with the surface of that shear line. When the control key is turned in the lock, it rotates the sleeve. That is the motion that draws in the locking lug.

Figure 8 shows a top view of the sleeve. You can see how the locking lug is machined into the sleeve. Notice that this core has seven pin chambers. Most modern Best style I-Cores will have either six or seven pin chambers. Some older cores will have even fewer pin chambers. Because of the sleeve design, only Best style cores will have a control key shear line that is entirely independent of the plug's operating key shear line. In future articles you will see that many other IC systems have control keys that share common cuts with operating keys.

Best locks can have three different pinning systems, designated: A2, A3 and A4. They each involve different size increments and pin stacks. Those pinning specifications will be detailed in "Interchangeable Core Locks- Best Style (Part 2)" next month along with other servicing information. **TL**



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## AUTOMOTIVE SECURITY

Test Article #116

### Lexus LS400 Service Procedures

By Michael Hyde

**T**he Lexus LS400 is one of Lexus' best selling cars. The LS400 is the flagship of the Lexus line, it is also the top of the line automobile from Lexus. Photograph one shows a side angle and tail view of the car. What is missing? The 1990 through 1994 LS400 is the only Lexus that does not have the model name on the exterior. The Lexus also uses a unique High Security key, utilizing a 4-Track Internal High Security keyway.

Because of the complexity of working on this vehicle, we will cover it a step at a time, starting with opening techniques and then moving into lock removal.

#### Opening Techniques

This car can be a tricky one to open. It is not difficult, just tricky.



1. The front view of the Lexus LS400.

Once you have unlocked the car, it re-locks itself. The Lexus line uses a sophisticated locking system that

knows the key is not opening it, so the car's alarm system is activated and the door lock motors re-lock the car within approximately one second of time to spare. An inside the car opening tool, sometimes referred to as an Under-The-Window tool, can be used to open this vehicle. A closer look at the tool in the working position is shown in photograph 2. I usually enlist the customer's help when I open these cars, by having the customer pull up on the handle in fast repetitive motions, as I unlock the car.



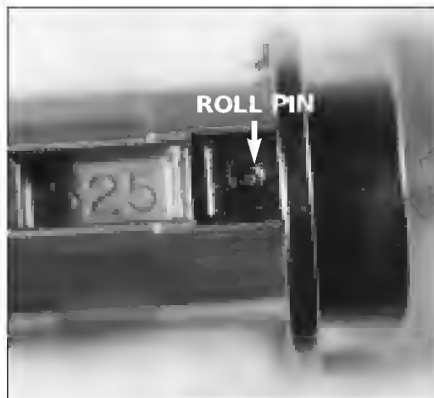
2. Opening the LS400 using an Under-The-Window tool.



4. The cylinder coming out of the housing.



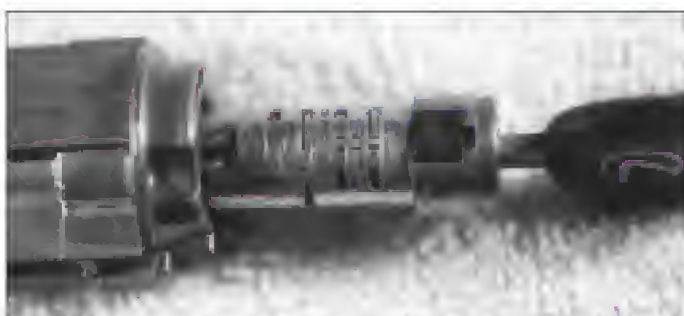
3. Remove the dash cover and the plastic bezel from around the lock.



5. The face cap is held to the lock body by both a roll pin and two staked posts.



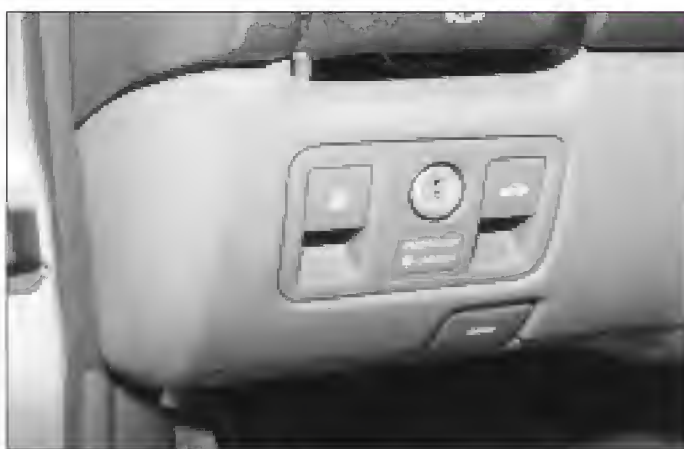
6. Drill a small hole next to the pin and pry it out with a pin punch or scratch awl. Then use a punch and gently tap the staked posts through the body to remove the face cap.



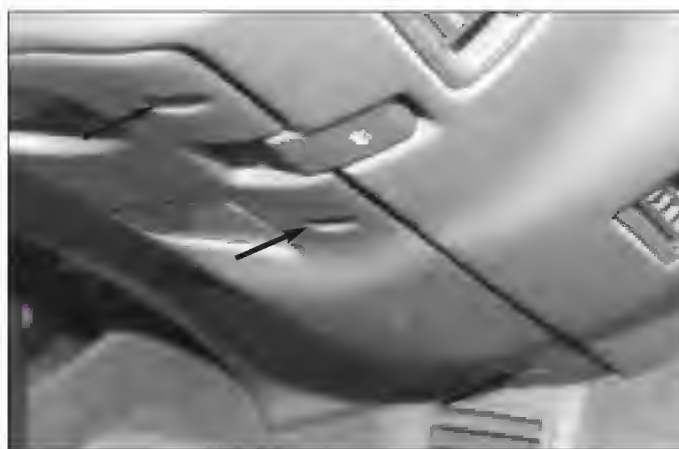
7. Use the key to remove the plug.



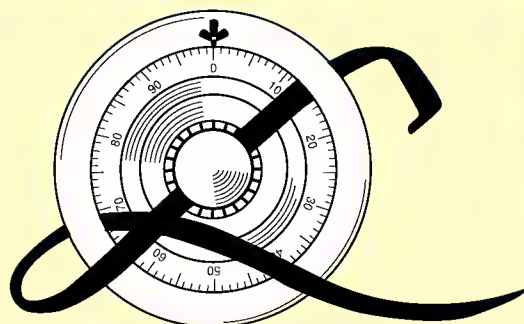
8. The ignition is made up of a combination of split and whole wafers. There is no eighth position tumbler in this lock.



9. The trunk release lock.



10. Remove three screws and drop the knee bolster or lower panel to get to the trunk release lock.



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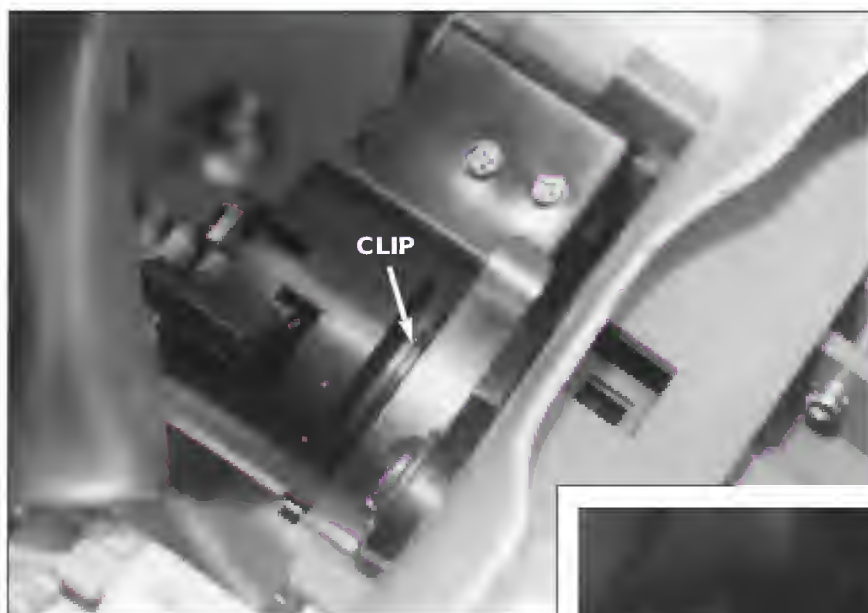
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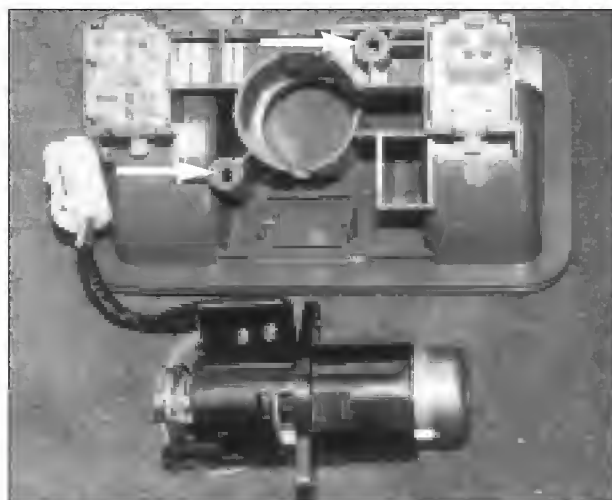


**11. Remove the clip from around the lock and depress the lock retainer to unlock the trunk release.**

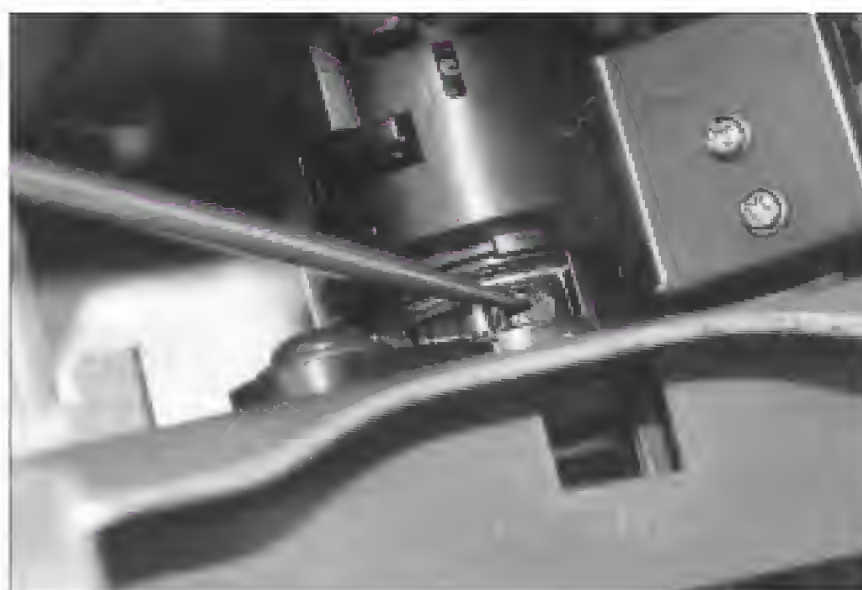
### Ignition Lock

The ignition cylinder is easier to remove than it appears. There is a padded dash cover that sits over the cylinder. The cover simply snaps right off with a gentle pulling pressure and then remove the screw that holds the plastic bezel in place. (See photograph 3.) Stop now and disconnect the battery, before proceeding. Insert a working key and turn the key to the ACC (accessory) position. Reach in with a L-shaped probe on top of the ignition housing and depress the retainer and pull out the ignition cylinder. (See photograph 4.)

You can always tell a Lexus High-Security ignition cylinder because



**12. Remove the two screws to remove the lock from the release.**



when you look directly at it you can see the two key guides sticking out in the keyway giving it a look of the letter "H."

To disassemble the cylinder you must first remove the ignition face cap. It is held on by a roll pin located on the top (See photograph 5.) and two staked posts found at its back. I drill a small hole directly next to the pin in order to use a pin punch to pry out the pin. (See photograph 6.)

To remove the face cap without damaging the two staked posts, place the cylinder in a vise. Do not over tighten the vise and crush the lock. Use a pin punch and a hammer to strike the posts in consistent light blows to each post in succession to allow the posts to travel back through the cylinder

housing and avoid breaking the posts. Next you will need to remove the plug retaining ring on the back of the cylinder.

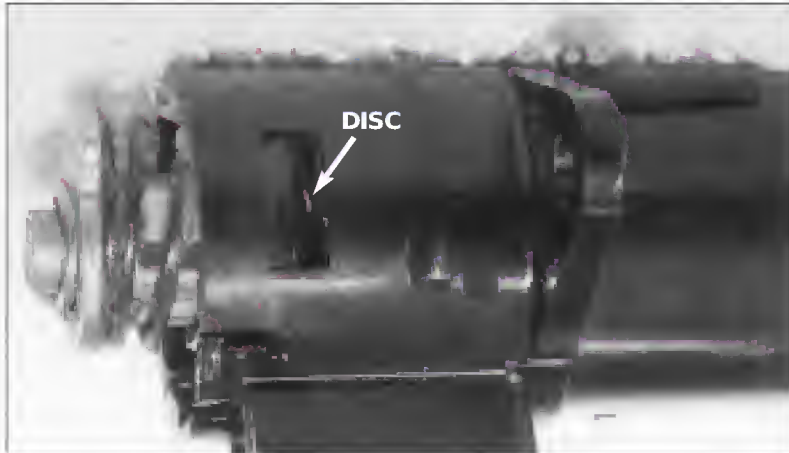
Insert the key and remove the plug. (See photograph 7.) Note the tumbler positioning as seen in photograph 8. The first three positions are for split tumblers and the next four positions are solid tumblers. There is no eighth position tumbler in the plug.

### Valet Lock-Out Switch

At the bottom driver's side of the dash board is a trunk release lock.

(See photograph 9.) In the locked position you are prevented from opening the trunk using the electrical release. This cylinder also contains all the tumblers that appear in the trunk lock. To get to the lock, the lower cover has to be removed and is held in place by three screws. (See photograph 10.) As the panel is lowered a large spring clip can be seen. This clip holds the panel to the steering column, pulling down on the panel releases the clip.

The next panel to remove to gain access to the lock is the lower driver's side panel, there are six 10mm bolts to remove, and are quite easy to get to. The first two 10mm bolts are found at each end of the panel, easily seen and easily removed. Two more 10mm bolts are located directly under the Parking Brake Release, you can see them and remove them without having to move anything out of the way. The last two bolts to remove are directly under the ignition cylinder housing.



**13.**  
*Gently remove the plastic disc from the back of the lock.*

There is a padded dash cover that hides these last two bolts. The cover just snaps off with a gentle pulling action (as discussed earlier in the Ignition servicing section). There are a couple of snaps that hold the panel in place and once you remove the six screws, gently pull outward on the panel to dislodge it.

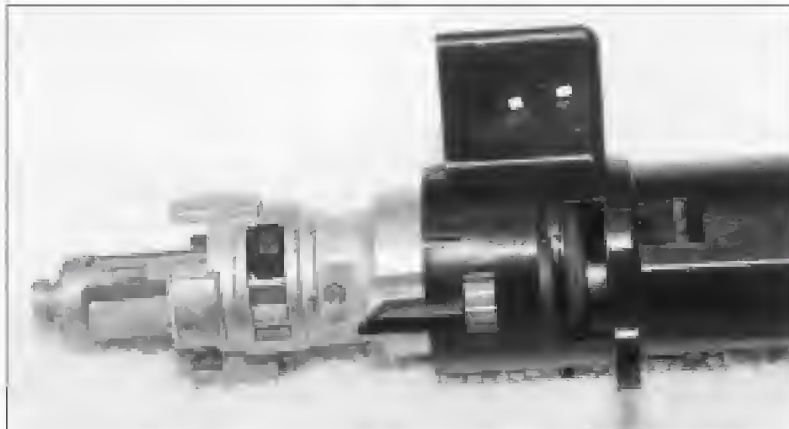
On the backside of the valet lock-out key cylinder there is a spring wire clip. Remove the clip and push in on the lock retainer and the lock will return to the unlocked position. (See photograph 11). Now if that isn't a nice trick, I don't know what is.)



**14.** *We now have access to the lock cylinder.*

There are two screws that hold the lock housing in place. Remove the screws and then pull outward on the cylinder housing to snap it apart from the front trim bezel. (See photograph 12.)

To avoid damaging it, the electrical micro-switch on the back of the lock must be removed. It is held in place by two small screws. Remove the E-clip that holds the tailpiece to the lock. Before you remove the tailpiece, take note of what I call the turning spring and its exact location. Remove the E-clip, remove the tailpiece, remove the turning spring.



**15.** *Remove the lock cylinder. Pressing on the retainer may be necessary to facilitate the removal.*

The next piece to remove is the plastic stopping disc. The disc is held in place on two sides of the housing, if you gently, and I mean gently, use a small screwdriver you can remove the disc by wedging it out of the way. Photograph 13 shows one side of where the disc is held in place. Once the disc is removed be careful not to lose track of the push-spring held in place by the disc.

Photograph 14 is a view of the lock disassembled to the point where the lock cylinder can be accessed. The lock cylinder can be removed from the housing by sliding it out the rear of the assembly. It may be necessary to push in on the lock retainer to ease this procedure.



**16.** *The plug and all of its tumblers.*

Remove the re-usable face cap and then slide the plug out the front of the cylinder housing. (See photograph 15.) It may be necessary to push in on the retainer to ease the plug out, watch out for the retainer as the plug is exposed the retainer and the spring behind it may go flying. There are eight tumbler positions in this lock, first four are solid, next three are split, and the last one is solid. (See photograph 16.) **TL**





## ELECTRONIC SECURITY

Test Article #117

# Biometrics - What Is It?

by Donald Shiles

**D**o you remember the problem that arose a few years ago when we were threatened with the change to the "Metric" system? And how us old-timers became really worried that our yards, feet and inches would go away? We would all have to learn all about meters, centimeters and millimeters, or whatever they're called? Well relax, that threat seems to be over and I am here to tell you, Biometrics has nothing whatsoever to do with that.

Biometrics simply comes from the Latin words "bio" as a prefix meaning something having to do with the body and metrics meaning measurement. Simply put, biometrics is the process of using a measurement of some part of the body as a means of identifying a certain individual. It has been around a long time, ever since fingerprints were discovered as being unique to each individual. In fact, fingerprints were not the first and definitely not the last things used.

The French used a system of bodily measurements to identify an individual over a hundred years ago. In 1879, a Frenchman by the name of Alphonse Bertillon developed a system of measuring the torso, head and limbs of an individual and using it to positively identify a person or corpse. This procedure, called the Bertillon System, was used for years, but was unwieldy and difficult to register and compare measurements.

Now we have numerous techniques in use for the same purpose. In addition to identifying criminals or bodies, we now can use these measurements to identify persons authorized access to a certain building or facility, or for many other reasons, such as blood donors, participants in business transactions, etc. In addition to finger and thumb prints, which are probably still the most common by far, are such esoteric devices as, hand geometry readers, eye retina scanners, voice recognition systems, signature verification systems, full

face recognition systems, and iris scanners.

Some of the techniques under study also include such things as blood gasses and DNA comparisons. In other words, almost any part of the bodily characteristics which are unique to an individual can, and probably will someday, be used as a form of access control or identification technique.

Let's take a look at some of the general advantages and disadvantages of these types of systems, then we will attempt to compare some of the individual types and identify advantages and disadvantages.

In future articles, I will introduce some of the latest devices to hit the market and attempt to give an unbiased opinion of each of them. Included among the advantages of biometrics over normal digital or card/token driven access control devices are the following: Any other type of access control only identifies an item, be it a card, token, PIN or other physical item which can be forgotten, lost, stolen, or mislaid.

A biometric device identifies an individual, not by what they have but by who they are. There is nothing to lose or have stolen. Each individual is

unique and carries their eyes, face, voice, and fin-ger/ thumb print with them at all times. Also, it is impossible for anyone to borrow someone else's eye or voice and enter a facility using such identification, as can be done with a PIN or card.

Unfortunately there are disadvantages as well. Each individual must be personally enrolled in the system prior to use, and this can take from as little as 9 seconds, up to as much as 15 minutes or more. A card or PIN can be enrolled prior to issuance and takes no time for the individual involved. Some biometric devices are somewhat intrusive and are not readily acceptable to all users. Very few people, however, will resent having to carry a card or token in order to gain admission; they are used to carrying keys for that purpose.

While there is no known biometric device that is hazardous to your health, people resist looking into an eyepiece while a light is shown into their eyes, or placing their face against a pad upon which other people's faces and noses have rested before. The future points towards devices that are less intrusive, more user-friendly and more acceptable to the public at large than some of the earlier ones. Let's take a closer look at some of the



1 - Hand geometry reader



2 - Eye retina scanner



3 - Handwriting verifier

various types of biometric devices now on the market.

Thumb and fingerprint readers have been around for years and are still effective. Fingerprints are a recognized identification tool and are readily accepted by most people. There are drawbacks and some security weaknesses; e.g., a terrorist would not hesitate to chop off a hostage's finger in order to gain

access to a target area. Steps have to be taken to preclude such a possibility, this could be temperature readings which have to fall within accepted parameters of a living human body, a pulse detector or other such device. There have also been instances where an intruder has used residue from a former fingerprint on the screen to gain entrance into a facility. The cost of these devices is relatively low but not cheap.

Then there are two types of devices on the market which measure various characteristics of the eye. The older of the two is the eye retina scanner which looks through the pupil of the eye and measures the blood vessel patterns on the back of the eye. These patterns are formed by birth and do not change thereafter. They are distinctive among all individuals, including identical twins, as are all of the biometric characteristics.

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The latest device to hit the market is the Iriscan which, rather than looking through the pupil into the eye, simply looks at the colored portion of the eye, or the iris, as it is called. Every iris is different, including your left eye being different from your right. There are innumerable differences in colors, striations and patterns.

There are also several types of signature verification systems; the most advanced, not only compare the way the signature looks, but measure the direction, speed, pressure of the pen point and the distance the pen is raised from the paper during signing. While an accomplished forger might copy a signature well enough to fool the most discriminating comparison camera or microscope, it has so far proved impossible for any human being to correctly copy all of the factors measured by one of the newer systems.

The early voice recognition systems were sometimes defeated by high fidelity recordings; however, this problem has been resolved in several ways. The computer may select any one of several prerecorded messages and direct the applicant to say a certain phrase or series of words. An applicant then repeats that phrase/ words back into the device. You would not only have to have all of the prerecorded phrases/ words on tape but also be able to instantaneously play any one or a combination of those words or phrases. In a high security area, it is even possible to have a device which can differentiate between a human voice and a recorded one by the

amount of air pressure being exerted upon the microphone. These improvements make a voice recognition system, to all practical purposes, foolproof.

One of the newest systems on the market now uses the most basic of all identification features, your face. A digital computerized camera photographs a registrant and prepares a composite picture of front, side and 3/4 views. An applicant stands in front of the device while the digital camera again records their picture, compares all of the features and ascertains whether it is the correct individual or not. This system is so new, it hasn't undergone a lot of field testing to my knowledge, but holds promise of being an effective system for identification use.

All biometric devices are designed to do one of two things; they either identify an individual by comparing the physical characteristic against all of the stored pre-enrolled templates, in what is known as the identification mode; or they compare the characteristic to a pre-selected template known as the verification mode. In the latter case, a card or PIN is used in addition to the biometric device to tell the computer who the attempted entrant purports to be and then allows the computer to compare the characteristic to the stored data to see if it matches.

This latter mode is quicker than the identification mode but not significantly so. In some devices it takes as little as 1/1000 of a second to verify and up to 1-1/2 seconds to identify an individual user from all listed templates within the system.

In actuality, the verification mode is simply tying a biometric device to an access control system to achieve a higher level of security and a more effective system of control. The process of tying these two types of systems together is called emulation; where a biometric device can emulate, or duplicate, the data furnished by an access control system and use the same computer, electric strikes, magnetic locks, etc., belonging to the existing system.

This leads us to another couple of drawbacks to the biometric systems. They can be so discriminating that the slightest change in a personal characteristic can cause a false reject of an authorized user, False Reject Rate (FRR) with the resultant delays in throughput time. This can be alleviated to a great extent in most systems by simply adjusting the measurement parameters; or, in other words, the percentage of match required to allow entry. If this is set too low, you could then have an unacceptable level of false acceptance of an unauthorized entrant. The average false acceptance rate (FAR) of a biometric device is on the order of 1 in a million or lower, if used and set properly.

The other major drawback is the cost. The lowest priced biometric devices run in the neighborhood of \$1,500 per portal and up to \$25,000 per portal. Although some of the signature verification systems coming onto the market, apparently will cost less than that. This high cost precludes their use on many facilities but when the need for security is high, or positive identification is an absolute requirement, there is nothing else on the market that can do the job as effectively or as well as a biometric device.

They are the wave of the future and if we don't join the race we are going to get run over by the electronic specialists, the alarm people, and the computer experts; all of whom feel a proprietary interest in these devices. If we don't adopt them as a physical security device we are going to lose them and will be on the outside looking in. Most biometrics are no more difficult to install than an electronic access control. An understanding of basic electronics is important and an ability to work with computers is a necessity. Therefore, we need to learn, grow and prepare to enter the 21st century. **RL**



**4 - Voice recognition system**



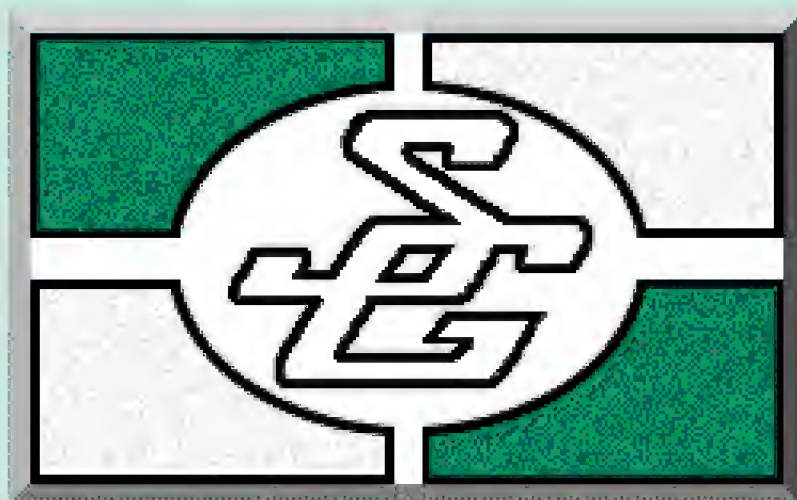
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## GENERAL SECURITY TEST

COVERS TEST ARTICLES...

#109 January 1996, "Parallel Arm Mount Closers"

#112 February 1996, "On The Right Track"

#115 March 1996, "Interchangeable Core Locks BEST Style - (Part 1)"

1. On a parallel arm mount closer, the arm must be preloaded by how much? (109)

- ☐ A. 90 degrees.
- ☐ B. 45 degrees.
- ☐ C. 15 degrees.
- ☐ D. 30 degrees.

2. Parallel arm mounting should never be attempted without ? (109)

- ☐ A. A level.
- ☐ B. A drill.
- ☐ C. A parallel arm bracket.
- ☐ D. A door stop.

3. Retrofit of parallel arm mount closers is typically more involved than regular or top jamb mounts? (109)

- ☐ A. True
- ☐ B. False

4. With parallel arm mount, sweep and latch valves should be facing? (109)

- ☐ A. Towards the hinges.
- ☐ B. Away from the hinges.
- ☐ C. Towards the header.
- ☐ D. Towards the threshold.

5. The sweep and latch speed should be adjusted so that closing from 90 degrees will take? (109)

- ☐ A. Ten to twelve seconds.
- ☐ B. Two to four seconds.
- ☐ C. One to Two seconds.
- ☐ D. Three to six seconds.

6. Backcheck is the resistance provided by the closer to forceful opening? (109)

- ☐ A. True
- ☐ B. False

7. Delayed action is the delay or hesitation before a door will open?

(109)

- ☐ A. True
- ☐ B. False

8. When setting the delayed action, take into account? (109)

- ☐ A. The potential loss of heat or air conditioning.
- ☐ B. The fire hazards.
- ☐ C. The elderly.
- ☐ D. Piggybacking.

9. The track surface closer arm is comprised of ? (112)

- ☐ A. Two arms.
- ☐ B. Three arms.
- ☐ C. One arm.
- ☐ D. None of the above.

10. Parallel arm mount closers typically requires upsizing by? (109)

- ☐ A. One size.
- ☐ B. Two sizes.
- ☐ C. Three sizes.
- ☐ D. Upsizing is usually not required.

11. Track surface closers typically requires upsizing by? (112)

- ☐ A. One size.
- ☐ B. Three sizes.
- ☐ C. Two sizes.
- ☐ D. Upsizing is usually not required.

12. The new track closers are based on? (112)

- ☐ A. A cam and roller design.
- ☐ B. Hydraulics
- ☐ C. A ball-bearing design.
- ☐ D. Kinetic energy.

13. The single-lever design of the track style arm makes the application less forgiving to faulty installation than regular top jamb installations? (112)

- ☐ A. True
- ☐ B. False

14. Some track closers incorporate bumpers or spring stops in the track? (112)

- ☐ A. True
- ☐ B. False

15. IC Core stands for? (115)

- ☐ A. Interchangeable Core.
- ☐ B. Interchangeable Core Core.
- ☐ C. Interchangeable Construction Core.
- ☐ D. None of the above.

16. The advantage of IC locks over conventional locks is? (115)

- ☐ A. The ease of rekeying.
- ☐ B. Greater master keying capabilities.
- ☐ C. The cylinder can be removed and replaced with a specially cut key.

☐ D. The Core is installed and removed with a set screw.

17. The unique concept of the interchangeable core lock was designed by? (115)

- ☐ A. Schlage
- ☐ B. Walter Best
- ☐ C. Linus Yale
- ☐ D. Shelby Core.

18. The standard interchangeable core lock has a Y-shaped cavity? (115)

- ☐ A. True
- ☐ B. False

19. The core of the interchangeable lock is secured in the sleeve by a ? (115)

- ☐ A. Set screw.
- ☐ B. Two screws.
- ☐ C. Locking lug.
- ☐ D. Roll pin.

20. The key to remove the core is called the? (115)

- ☐ A. Control key.
- ☐ B. Master key.
- ☐ C. Core key
- ☐ D. Sub-master.

21. The control key is rotated? (115)

- ☐ A. 10 degrees counter clockwise to retract the lug.
- ☐ B. 20 degrees clockwise to retract the lug.
- ☐ C. 15 degrees counter clockwise to retract the lug.
- ☐ D. 15 degrees clockwise to retract the lug.

22. Most modern Best style IC locks will have ? (115)

- ☐ A. Five or six pin chambers.
- ☐ B. Six or seven pin chambers.
- ☐ C. Seven or eight pin chambers.
- ☐ D. Five pin chambers.

23. The Best locks have how many different pinning systems? (115)

- ☐ A. One
- ☐ B. Two
- ☐ C. Three
- ☐ D. Four

24. The tumblers and tumbler springs is usually tied together with a separate component called the housing? (115)

- ☐ A. True
- ☐ B. False

25. Other companies that make cores designed to fit into Best style housings include? (115)

- ☐ A. Falcon
- ☐ B. KABA
- ☐ C. Peaks
- ☐ D. KSP

RL



## AUTOMOTIVE SECURITY TEST

COVERS TEST ARTICLES...

#110 January 1996, "1995  
Toyota Celica, (Part 2)"

#113 February 1996, "The  
Nissan NX2000"

#116 March 1996, "Lexus  
LS400"

**1.** How many fasteners and screws need to be removed to pull the door panel on the Toyota Celica? (110)

- ☐ A. Six
- ☐ B. Eight
- ☐ C. Eleven
- ☐ D. Thirteen

**2.** The Toyota door lock cylinder has how many tumblers? (110)

- ☐ A. Six
- ☐ B. Seven
- ☐ C. Eight
- ☐ D. Nine

**3.** A trim piece must be removed to service the trunk lock? (110)

- ☐ A. True
- ☐ B. False

**4.** The trunk lock on the Toyota has how many tumblers? (110)

- ☐ A. Six
- ☐ B. Seven
- ☐ C. Eight
- ☐ D. Nine

**5.** The Toyota glove box is held in by? (110)

- ☐ A. A roll pin.
- ☐ B. Two screws
- ☐ C. Retainer pin.
- ☐ D. Spring clip.

**6.** The glove box lock contains how many tumblers? (110)

- ☐ A. Four
- ☐ B. Five
- ☐ C. Six
- ☐ D. Seven

**7.** The valet key operates what tumbler position in the trunk lock. (110)

- ☐ A. Six
- ☐ B. Seven
- ☐ C. Eight
- ☐ D. Nine

**8.** How many depths are used in the Toyota lock? (110)

- ☐ A. Two
- ☐ B. Three
- ☐ C. Four
- ☐ D. Five

**9.** Four sheer-head bolts must be removed to pull the Nissan NX ignition lock? (113)

- ☐ A. True
- ☐ B. False

**10.** How many roll pins must be removed to pull the ignition lock? (113)

- ☐ A. One
- ☐ B. Two
- ☐ C. Three
- ☐ D. None

**11.** How many fasteners need to be removed to pull the door panel? (113)

- ☐ A. Six
- ☐ B. Eight
- ☐ C. Ten
- ☐ D. Twelve

**12.** The key code is stamped where? (113)

- ☐ A. The drivers door lock.
- ☐ B. Passenger door cylinder tailpiece.
- ☐ C. In the glove box.
- ☐ D. On the trunk lock.

**13.** The code series runs from X0001- 8000. Which numbers are the actual code? (113)

- ☐ A. The last four.
- ☐ B. The first three.
- ☐ C. All five.
- ☐ D. None of the above.

**14.** The trunk lock is held in place by a rivet? (113)

- ☐ A. True
- ☐ B. False

**15.** The trunk lock contains how many tumblers? (113)

- ☐ A. Six
- ☐ B. Seven
- ☐ C. Eight
- ☐ D. Nine

**16.** Thirteen screws must be removed to access the glove box lock? (113)

- ☐ A. True
- ☐ B. False

**17.** The glove box lock contains how many tumblers? (113)

- ☐ A. Four
- ☐ B. Five
- ☐ C. Six
- ☐ D. Seven

**18.** The Lexus utilizes a 2-track high security key? (116)

- ☐ A. True
- ☐ B. False

**19.** The Lexus uses a sophisticated re-locking door lock system? (116)

- ☐ A. True
- ☐ B. False

**20.** To remove the ignition switch, it must be in the OFF position? (116)

- ☐ A. True
- ☐ B. False

**21.** The ignition lock facecap is secured by? (116)

- ☐ A. One roll pin and two staked posts.
- ☐ B. Two roll pins.
- ☐ C. One roll pin.
- ☐ D. Two staked posts.

**22.** The ignition lock contains how many tumblers? (116)

- ☐ A. Six
- ☐ B. Seven
- ☐ C. Eight
- ☐ D. Nine

**23.** The 1990 - 1994 LS400 is the only Lexus that does not have? (116)

- ☐ A. A trunk lock.
- ☐ B. A glove box lock.
- ☐ C. An interior trunk release.
- ☐ D. The name on the exterior.

**24.** The ignition lock is secured by? (116)

- ☐ A. A roll pin.
- ☐ B. Retainer pin.
- ☐ C. Two roll pins.
- ☐ D. A roll pin and retainer pin.

**25.** How many split tumblers are in the ignition lock? (116)

- ☐ A. One
- ☐ B. Two
- ☐ C. Three
- ☐ D. Four







## ELECTRONIC SECURITY TEST

COVERS TEST ARTICLES...

#111 January 1996, "Testing Your Wireless System"

#114 February 1996, "Troubleshooting the Wireless"

#117 March 1996, "Biometrics - What Is It?"

1. Sensors should be located within how many feet from the panel? (111)

- ☐ A. 25 feet.
- ☐ B. 50 feet.
- ☐ C. 100 feet.
- ☐ D. It's unlimited

2. To relocate a sensor, test the sensor a few inches from the original position? (111)

- ☐ A. True
- ☐ B. False

3. To reposition a sensor, rotate the sensor 45 degrees from the original position? (111)

- ☐ A. True
- ☐ B. False

4. The sensor test lets you determine what? (111)

- ☐ A. If a door is open.
- ☐ B. Whether signals are being received by the control panel.
- ☐ C. If a window is open.
- ☐ D. Whether signals are being received by central station.

5. If a system won't arm, the problem is usually the result of? (114)

- ☐ A. An open sensor.
- ☐ B. A closed sensor.
- ☐ C. A bad relay.
- ☐ D. Interference.

6. If central station is not receiving reports? (114)

- ☐ A. Check the printer.
- ☐ B. Check that the DB-8 cord is plugged into the RR-30 jack.
- ☐ C. Check that the DB-8 cord is plugged into the RJ-31X jack.
- ☐ D. Check the owners manual.

7. If the panel doesn't power up? (114)

- ☐ A. Check the circuit breaker to be sure the circuit is live.
- ☐ B. Check the phone lines.
- ☐ C. A solenoid is bad.
- ☐ D. The PC board is fried.

8. The most common Biometrics device is? (117)

- ☐ A. Voice recognition.
- ☐ B. Handwriting analysis.
- ☐ C. Thermal impressions.
- ☐ D. Finger and thumb print readers.

9. Some biometrics techniques under study are? (117)

- ☐ A. Hair follicle comparisons.
- ☐ B. Blood gasses and DNA comparisons.
- ☐ C. Muscle density.
- ☐ D. Pigment comparisons.

10. One advantage of Biometrics devices is? (117)

- ☐ A. There is nothing to lose or have stolen.
- ☐ B. You don't need to remember anything.
- ☐ C. It is foolproof.
- ☐ D. It's inexpensive.

11. One disadvantages of a Biometrics device is? (117)

- ☐ A. It's inaccurate.
- ☐ B. It's cost prohibitive.
- ☐ C. Each individual must be personally enrolled.
- ☐ D. Difficult to install.

12. The eye retina scanner measures? (117)

- ☐ A. Blood vessel patterns.
- ☐ B. The number of blood vessels.
- ☐ C. Eye pressure.
- ☐ D. Your vision.

13. The Iriscan measures? (117)

- ☐ A. The circumference of the eye.
- ☐ B. Blood vessel patterns.
- ☐ C. Diameter of your pupils.
- ☐ D. The colored portion of the eye.

14. A signature verification system compares the way a signature looks and measures the direction, speed, pressure and the pen point and distance the pen is raised from the paper? (117)

- ☐ A. True
- ☐ B. False

15. All Biometrics devices are designed to do one of two things, they either identify an individual by physical characteristics known as identification mode: or they compare characteristics to a pre-

selected template known as verification mode? (117)

- ☐ A. True
- ☐ B. False

16. FRR is an abbreviation for? (117)

- ☐ A. Federal Reject Rate.
- ☐ B. False Reject Rate.
- ☐ C. False Registered Rate.
- ☐ D. Federal Reserve Rate.

17. FAR is an abbreviation for? (117)

- ☐ A. False Acceptance Rate.
- ☐ B. Federal Acceptance Rate.
- ☐ C. False Accountable Ratio.
- ☐ D. Ferrous Arrest Resource.

18. To perform a sensor test, place all sensors in their secured state, normally open or normally closed? (111)

- ☐ A. True
- ☐ B. False

19. Use an RF sniffer to verify that a sensor is transmitting? (111)

- ☐ A. True
- ☐ B. False

20. If all panel L.E.D.s are flashing, The panel is in standard mode? (114)

- ☐ A. True
- ☐ B. False

21. If the phone does not work, disconnect the panel form telephone jack. If the phone still does not work, the system is OK. (114)

- ☐ A. True
- ☐ B. False

22. The English used a system of bodily measurements in 1879? (117)

- ☐ A. True
- ☐ B. False

23. Biometrics devices can be hazardous to your health? (117)

- ☐ A. True
- ☐ B. False

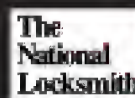
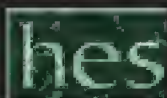
24. Early voice recognition systems were sometimes defeated by high fidelity recordings? (117)

- ☐ A. True
- ☐ B. False

25. The average false acceptance rate of a biometrics device is on the order of 1 in a billion or lower? (117)

- ☐ A. True
- ☐ B. False

TNL



# BEGINNER'S CORNER

## Pinning for profits with LAB.

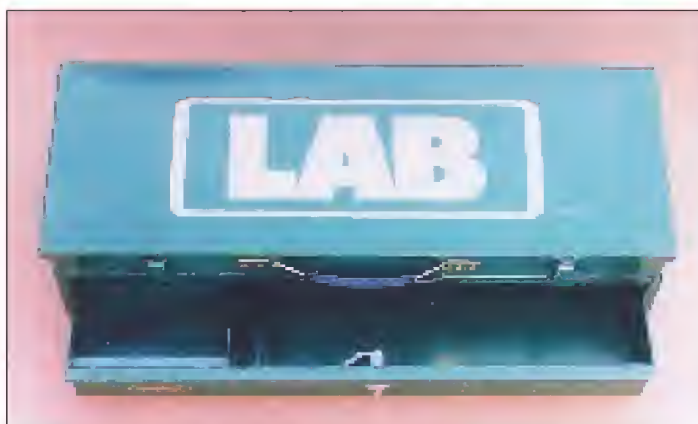


by  
**Eugene  
Gentry**

**W**hen you open the cardboard box containing your Lab Emerald Wedge Pinning Kit, you are immediately struck by the beauty of the colors, green and gold. (See photo-graph 1) Then when you open the lid, it is like looking at a Christmas tree.

As you look over the kit, you find that all these colors have a purpose. For instance, the metallic case finish, is a durable protective finish, designed to hold up with wear and tear. The pin colors help you distinguish the pins, and correspond with the colors on the charts.

The Lab Emerald Wedge differs from other pinning kits in that it has a 10-degree angle that allows the locksmith to select the pins without having to lean over the kit. It gives a better view of the pin tray. It is also available with a set that has a matching separate tool box, and a set with an attached tool box. The tool boxes are



**1. LAB Emerald Wedge Pinning Kit.**



**2. Pin chart is laminated for easy cleaning.**

large enough to accommodate all the pinning tools, calipers, picks, followers and decoding tools.

I asked friend Rick Malanowski, an industrial locksmith what he thought about the Lab Wedge. He was impressed by the color and the durable finish of the case. He liked the angle of the case, and the fact that the numbers under the pins are protected against dirt and grime. He said the pinning kit was sturdy, well designed, and well thought out

**T**he Wedge is a universal pinning set with 124 sizes in .003 increments, with top pins at .010 to .200, and bottom pins from .156 to .360. In the .005 increments there are 102 sizes. The chart is easy to read, and the information is printed in the exact same color of the pin tumbler in the tray. The pin chart is laminated so that it can be cleaned, and you can even write on it with a non-



**3. Pin tray is angled and easy to read with large numbers.**



**4. Punch out sheet to uncover common used pins.**





**5. Pull-down tab on bottom to bolt on a work bench.**

permanent marker and erase it. The chart not only has all the pin sizes for each type of lock, it lists the effective diameter spacing for the cuts and lists MACS or maximum adjacent cut. (See photograph 2)

**A**s mentioned, the pin tray is angled for visibility, and is made of clear plastic. A printed pin locator is inserted under and inside the clear tray so the numbers can be seen clearly but will

never wear off. This display also allows the pin numbers to be printed double the size as other pin sets. (See photograph 3)

One thing that I liked about the set is a plastic punch out sheet is included. If you are pinning just a few of the same locks all the time, you can punch out the sheet to uncover the pins of the locks which will be a time saver in the search for pins. (See photograph 4)

Additional features on the set with attached tool box are handles on the



**6. Tool box can be mounted under a work bench.**

side of the set for lifting, and pull down tabs at the side and bottom for bolting to a mobile workbench. (See photograph 5) The separate tool box also has tabs for bolting on top of a bench and holes in the top for bolting underneath a workbench. (See photograph 6)

For information on the Emerald Wedge, or other pinning kits or supplies, contact: Lab, P.O. Box 350, Napco Drive, Terryville, CT 06786, or call 1-800-243-8242.

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**COVER  
STORY!**

# Padlock Torture Testing



by Dale Libby, CMS

In this article, Dale discusses a Padlock Torture Test that he and former editor Tom Seroogy performed on seven heavy duty padlocks.

Torturing padlocks is fun. The stars of this article are shown in Photograph #1. We are not going to single out any particular padlock. They all performed with exceptional merit, caliber, excellence and virtue. These tests were performed without the consent or encouragement of the individual manufacturers.

**We froze them, salted them, cut them, beat them and burned them.  
See which survived the torture.**

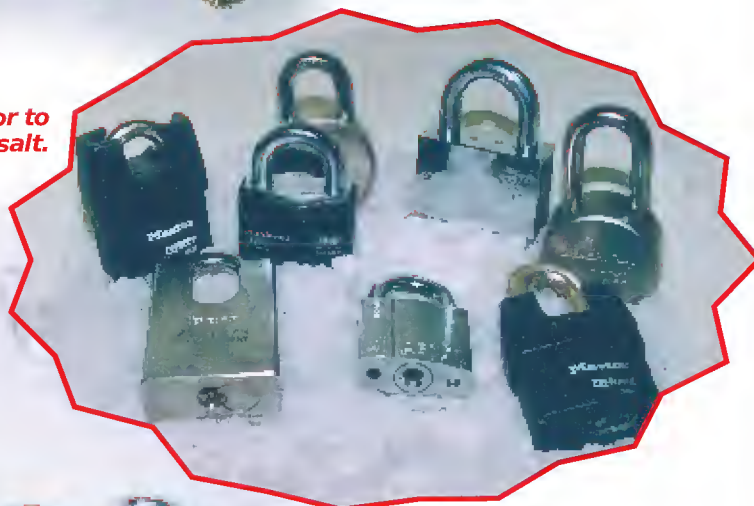
**The padlocks used in this  
Torture Test included:**

1. American Series 700 Padlock
2. American Series 747  
shrouded shackle Padlock
3. Federal Series 900 Padlock
4. Abus Granite 36/ 55 Padlock
5. Abloy 240 Series Padlock
6. Abloy 231 Series Padlock
7. Mul-T-Lock Model. C1  
removable shackle and HD  
Hasp.
8. Master PRO Series™ #6327  
Shrouded shackle Padlock



**1. The stars of the Padlock Torture Test.**

**2. Padlocks prior to  
immersion into rock salt.**



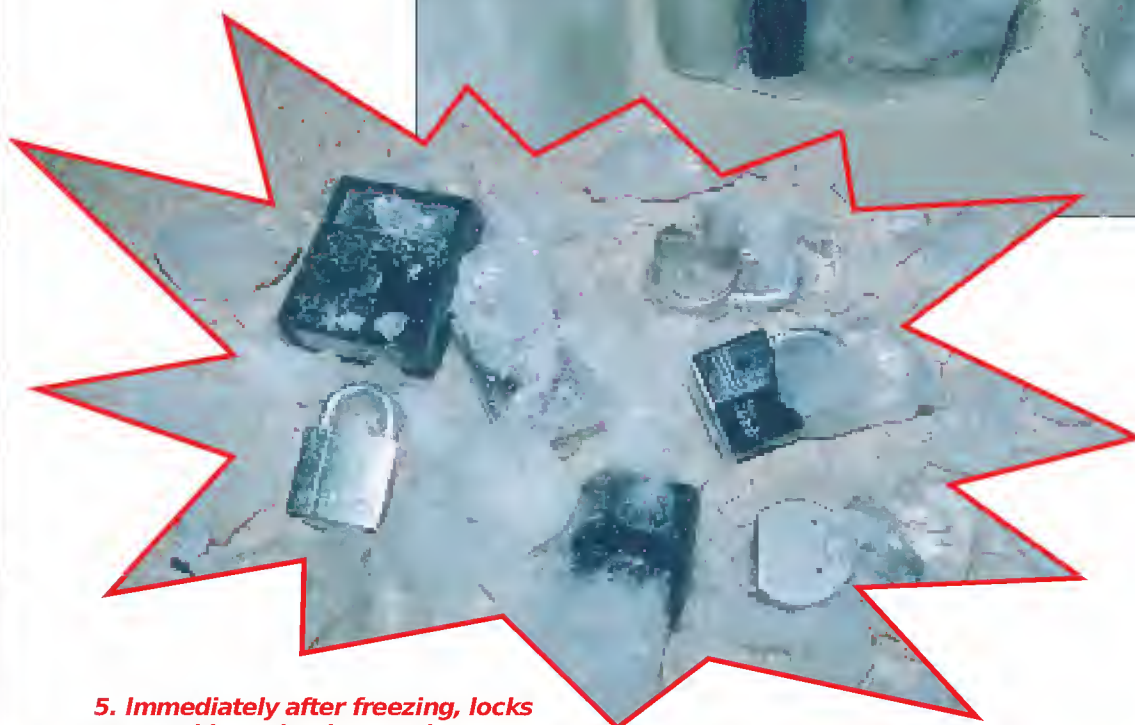
**Continued on page 36**

**3. After a week in salt, some locks evinced slight rust discoloration.**



Continued from  
page 34.

4. After a week in the  
deep freeze, padlocks  
were smashed free.



5. Immediately after freezing, locks  
were subjected to intense heat.



In my everyday life as a mild mannered Locksmith/ Safecracker, I have to open and defeat many types and styles of padlocks that have been in the worst of weather conditions.

I have a contract with four large self-storage companies. When a customer defaults on a payment or just disappears, I am called on to open the outside storage locker and put a 'red' padlock on the unit.

I am paid a good price to do this per padlock, and I do not charge a service call or trip charge. I am thankful that I do not meet any of the above listed padlocks on a regular basis. The usual locks I encounter on self-storage buildings consist of the Master #5, the Master Gun lock variety with the shrouded shackle, and the Abus Discus type of round padlock.

Some of these just listed padlocks can be picked, but most use a spool pin arrangement that makes picking unprofitable. The Heavy duty and high security varieties listed at the beginning of this article must be attacked to be defeated.

Since I do not have a seven foot pair of bolt cutters, I have to defeat, conquer, master,



**7. Padlocks were beat silly, but none succumb to the attack.**

overcome and subjugate them in a different manner. I accomplish this (on the job) by drilling out the cylinder where feasible, or by using a Dremel Moto Tool. A fiberglass reinforced cutting disk, makes short work of even the best padlock with a shrouded shackle. The thrust of this article is not to defeat these padlocks by professional means, but to see how the padlocks hold up under brute force, bad weather, and general neglect.

**T**he first torture test consisted of immersing the padlocks in salt water. For this test, we elected to use Rock salt. This is the same salt that is spread on the roads of Northern Illinois to melt snow. Photograph #2, shows the padlocks on a pile of rock salt.

We mixed a generous amount of salt in a bucket of hot water and threw the padlocks in for over one week.



**6. A good old set of bolt cutters were also put to the test by Dale and Marc.**

Periodically, we would hook the padlocks with a coat hanger, lay them on a towel, and then re-immersing them in the bucket of salt water.

Photograph #3, shows the salt encrusted padlocks. Some of the padlocks evinced a slight bit of rust around the keyway and cylinder guard. Some internal rust in the shackle

holes was also present, but in no way hindered the working and opening of all the padlocks. Before trying to open the locks with the keys, we rinsed them in hot water.

All the padlocks worked. The best performance was turned in by the Abloy padlock. This can be expected however, because discus locks normally perform better under duress conditions. All the padlocks tested worked without lubrication of any kind. (This was great performance by these locks since they



are all steel. Brass is normally used in salt corrosion environments. We were impressed.) I then rinsed the padlock bucket to get rid of the salt and refilled it with water. The padlocks were then immersed again, and the bucket was put into *The National Locksmith* testing lab Ultra-freezer.

Another week passed before we partook of the last torture experiment. Photograph #4, shows the padlocks being smashed out of the frozen ice block. Once the padlocks were separated, we took them outside and subjected each lock to yet another torture test - fire.

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Each padlock was heated until the water was sizzling off the locks and the ice changed to steam. The flames can be seen in Photograph #5. We then took the padlocks and threw them into a bucket of cold water to cool them off. Again, we tested them with the keys, and again they all worked.

**T**he keys for the padlocks represented the standard paracentric type of key for the American, Abus, Master, and Federal padlocks. The Abloy padlocks used the high security Abloy type half moon key, and the Israeli made Mul-T-Lock dimple cut within a cut type key.

All the locks worked, and when they were lubricated, they functioned like new.

A few more torture tests were in order. Photograph #6, shows yours truly with the help of Marc Goldberg trying to cut a hardened shackle with a 2-1/2 foot bolt cutter. The hardened special alloy shackles were imperceptibly marked, but we demolished the jaws of the bolt cutters. One more test to go.

For this test, we attached the padlocks to the bumper of my truck and then proceeded to try and smash them off with a four

pound sledge hammer. Some of the locks can be seen in Photograph #7. The net result was to put inordinate pressure on the shackles. When we tried to remove the padlocks, the keys turned the cylinder but some of the shackles would not release.

This was due to the ball locking action of most of the padlocks. Two hardened steel balls were employed to secure most of the padlock shackles. When the padlock body was hammered, the locking balls were forced into the shackle cutouts which positively kept the padlocks closed.

This is similar to a Chinese finger lock toy where you insert your fingers into a paper tube. When you pull to try and remove your fingers, the tube tightens up and your fingers are locked in the tube as long as you try to pull them apart. You have to push your fingers together to release tension on the tube before you can extricate your digits.

The same was true for these padlocks. The shackles had to be driven into the padlock body before the key would work to open the padlocks. Photograph #8, shows the working stars of this test. The locks were a little battered, but with

lubrication, they all performed well and as good as new.

The purpose of this article was to show that quality padlocks do perform well under even the most adverse conditions. In fact, most break-ins where heavy duty padlocks are used to secure merchandise, show that the chain, hasp, or door to which the padlock was attached was compromised before the padlock let loose.

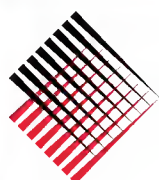
Tell and show your customers the benefits of purchasing a good padlock. They will hold up to weather and forcible attacks better than regular hardware variety padlocks.

All-Lock sent in some new padlocks they are manufacturing for the locksmith market. These are new items. Unfortunately they were too late to be included in this torture test, but I plan to explore their insides with my Dremel Moto Tool shortly and report on these wheel type combination padlocks soon.

Open and Prosper!! **RL**



**8. After the tests, all padlocks opened without lubricant.**



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**For product information on these locks, please circle the corresponding numbers on the Rapid Reply Card located on page 87.**

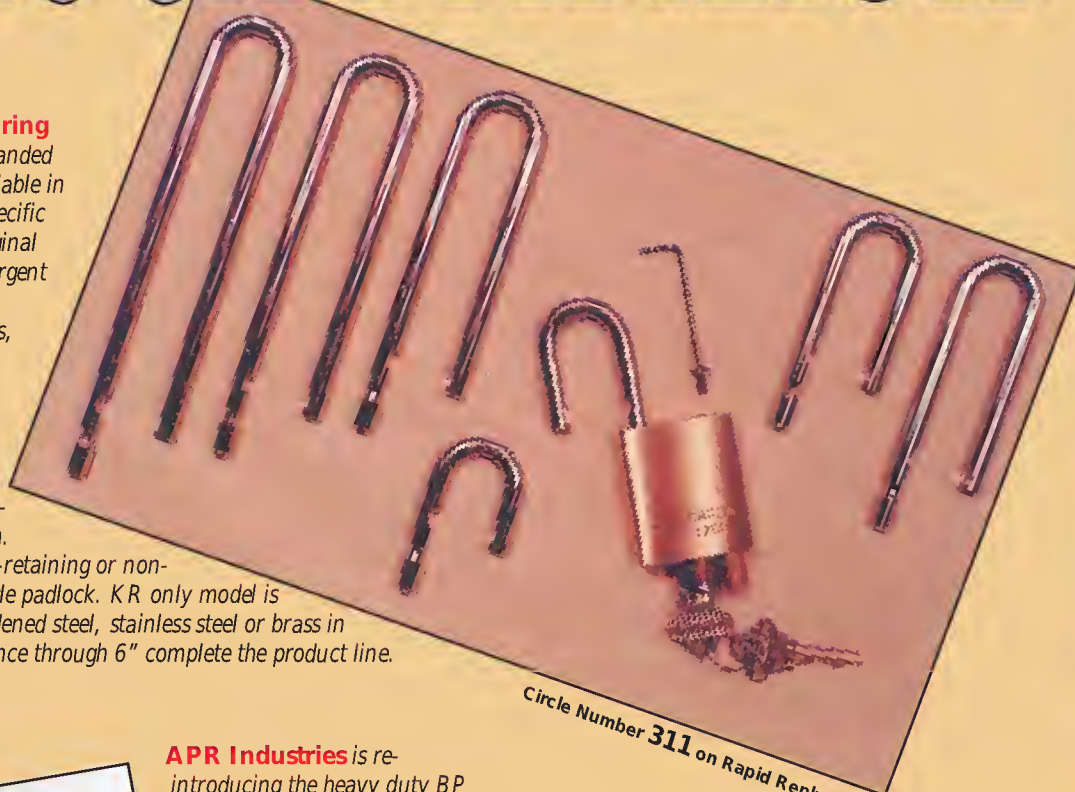
1. American Series 700 Padlock - **Circle number 286.**
2. American Series 747 shrouded shackle Padlock - **Circle number 287.**
3. Federal Series 900 Padlock - **Circle number 288.**
4. Abus Granite 36/ 55 Padlock - **Circle number 289.**
5. Abloy 240 Series Padlock - **Circle number 290.**
6. Abloy 231 Series Padlock - **Circle number 291.**
7. Mul-T-Lock Model. C1 removable shackle and HD Hasp. - **Circle number 292.**
8. Master PRO Series™ #6327 Shrouded shackle Padlock - **Circle number 293.**



# PADLOCK PAVILION

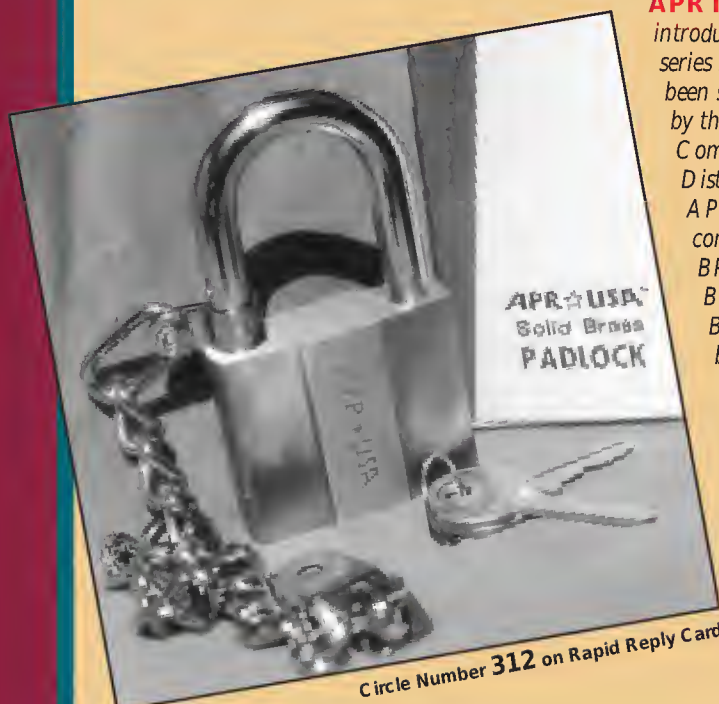
## New Standard Manufacturing Company

announces an expanded padlock and shackle line. Available in 1-3/4" and 2" body widths, specific models accept Schlage type original aftermarket knob cylinders, Sargent & Arrow knob cylinders, Russwin-Corbin knob cylinders, Yale knob cylinders, Best type I.C., Russwin-Corbin I.C., Medeco I.C., Schlage I.C., and Sargent I.C. cylinders. All models are available with the new "Patented" NKR-CV Dual-Function mechanism. Locksmiths can now select key-retaining or non-key retaining function in a single padlock. KR only model is also available. Shackles of hardened steel, stainless steel or brass in seven lengths from 7/8" clearance through 6" complete the product line.



Circle Number 311 on Rapid Reply Card.

**APR Industries** is re-introducing the heavy duty BP series brass padlock that has been sold over the last decade by the American Lock Company, and Locksmith Distributors of America. APR - USA's BP series comes as 1 1/4" BP30/31, 1 1/2" BP40/42, 1 3/4" BP45/47, 2" BP50/51 both long and regular shackle and is available in keyways used by American Lock and L.S.D.A. Shown here is the BP51 with chain.



Circle Number 312 on Rapid Reply Card.



Circle Number 313 on Rapid Reply Card.





Circle Number **314** on Rapid Reply Card.

**Medeco Security Locks'** newest padlock line, the **M etroL ock™** padlocks, are made to keep thieves on their side of the fence. Hardened, solid steel bodies and the virtually pickproof and drill resistant **M edeco** cylinder combined make these padlocks tough enough and safe enough for the streets of New York City.

The **M etroL ock** padlock is one of the toughest yet from **M edeco**. Plus, when purchased with the **Biaxial®** cylinder, it becomes virtually impossible to duplicate keys without permission of the purchaser.

**CCL Pin Tumbler Padlocks.** A locksmith's favorite, The **C C L M odel 906** is a rugged, versatile pin tumbler padlock which can be keyed differently, keyed alike or masterkeyed. The **M odel 906** features a smartly-styled, solid brass case and is available with either a solid brass or hardened steel chrome plated shackle. Offered in four shackle clearances (1-3/16", 1-5/32", 1-21/32" and 2-13/32").



Circle Number **315** on Rapid Reply Card.

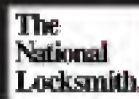
**Schlage Lock Company's PL-Series Padlocks** (PL-1000 pictured) enable facility managers and locksmiths to standardize their key systems with one key controlling all their building's security areas. It also features the first-time availability of a Schlage interchangeable core design. Primus high security cylinders are also available in the line of 11 different padlocks.



Circle Number **316** on Rapid Reply Card.

With a wide range of highly innovative ideas, **M ul-T -L ock** offers the ultimate in high security padlocks. All padlocks ranging in different sizes are made in the same fashion. The **U L** approved cylinder is built into the lock core and is protected by a hardened steel shell. The shackle which is also made of hardened steel alloy, protects the cylinder from the right and left sides making the cylinder "H ard to reach". **M ul-T -L ock** does not rely on a screw to retain the cylinder. The keyhole is smaller than the plug making the cylinder impossible to pull out. All padlocks are available with shackle protector or unique one of a kind hasp. With all of these features **M ul-T -L ock** has kept the "Locksmith friendly" aspect making the padlocks very easy to service and rekey.

**TNL**



by  
**Tom Seroogy**

## **Sentry Secrets Surrendered**

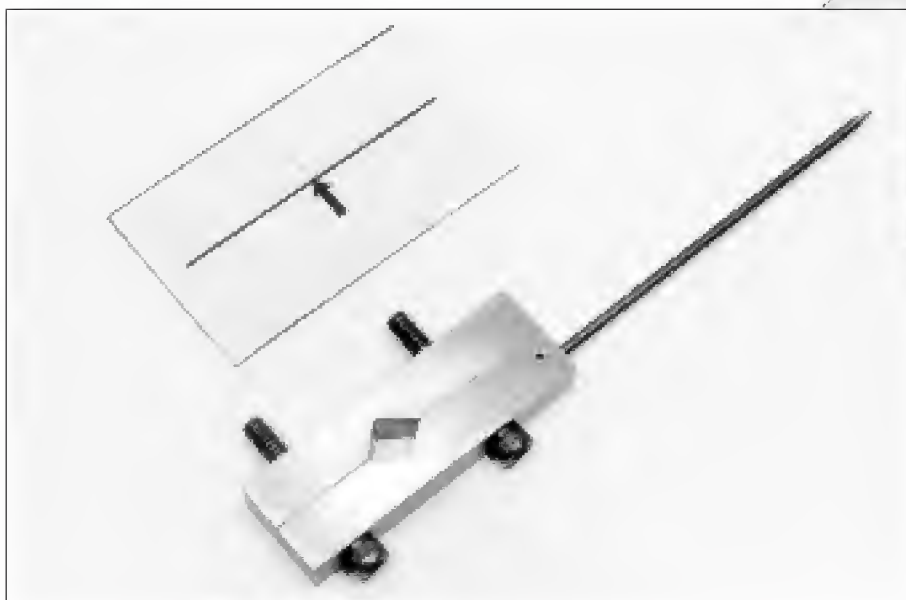
**The Sentry Safe and the Saber Tool manipulation aid provide the perfect first step for beginning your career as a safe technician.**

**B**reaking into safe work, especially if you're trying to maintain a full-time lock service, can be almost impossible. In an ideal world, there would be enough time to take a lengthy, hands-on course that covers all aspects involved in safe work. Tools would be easy to obtain and reasonably inexpensive. And, there would be enough spare time to develop your new found skill before you had to use it.

Now, let's look at the real world. Most of us have at least a minimal understanding on how a safe and a safe lock operates. We know a little bit about relockers, bolt works, wheel action, etc. However, for most that's not quite enough to qualify us as competent safe techs, right? I mean, I understand the principles and concepts of the internal combustion engine. But outside of changing the oil, I'm not about to try my hand at disassembling one of those puppies.

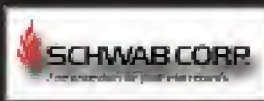
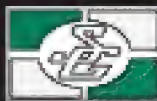
Still, not having the time to tackle full-fledged safe work is no reason to turn it down all together. Recently, Saber Tool Company, has released a mini-course that allows even a novice locksmith to break into the beginning levels of safe work. Designed specifically around Sentry safes, the tool and instructions give a thorough training in both surreptitious and covert entry methods. (see photo 1).

The nice features of having chosen the Sentry line on which to produce a tool and course is that the opening principles are easy to learn and use; there are tens of thousands of Sentry safes in the field; even a beginning safe tech will have success and earn money on his/her first attempt; and the tools, techniques and information serve as an excellent stepping stone for the locksmith looking to make the first inroads into safe work.



**1. The Sentry Manipulation aid by Saber Tool comes with a complete manual on opening the Sentry safe.**





Continued from page 42

So, what is the magic behind this little package? Quite simply, a manual that covers all the aspects of opening a Sentry safe, plus a manipulation aid that really works. The first part of the manual covers Sentry's locking system, describing the various components and how they operate together. Then, based on this information, manipulation techniques unique to the Sentry are covered. This, of course, is followed up by the proper use of the tool. The final sections cover alternate methods for opening and troubleshooting the Sentry safe: i.e. various drill points, bolt punching, etc.

The tool itself is quite simple and can be used in other applications besides the Sentry safe. However, for the sake of this article, we will cover it being used for its designed purpose - the Sentry. (See photograph 2.) The overview of the opening is as follows:



**2. Our task is to open this Sentry 6330 direct drive fire safe.**

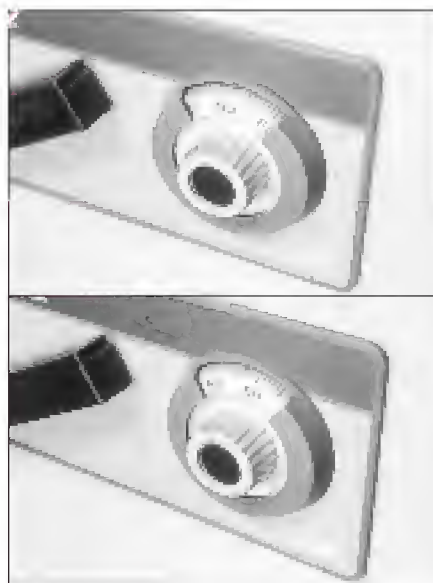
The opening technique is built around two properties of the Sentry safe, its direct drive locking system, and the false gates of the third wheel or drive cam. First, using the false gates of the third wheel, locksmith is instructed to find the true gate, to render the third or last number of the combination. Then the locksmith is directed to use the manipulation aid to determine the next number, giving the locksmith two of the three numbers in the combination. It is not known at this time, however, whether this is the first or second number of the combination. Therefore, to get the final number, thus opening the safe, a technique called "abbreviated dialing" is employed.

Now follow as we use the techniques and tool to open a Sentry safe.

### The Third Number Of The Combination

The first number we are going to look for is the third or last number of the combination. This is determined by feeling and indexing the width of the false gates of the third wheel or drive cam. The secret here is that while applying light pressure to the opening handle, the dial can only move two to four numbers on all the false gates. When the dial is able to move six to eight numbers, this is the true gate. (See photograph 3.)

In this safe, we applied light pressure to the handle and moved our dial back and forth in each gate. When we reached the number "53" we were able to rotate the dial six to eight numbers. This is our last or third number or the drop-in point.



**3. Checking the width of the false gates, we determined the true gate of the third wheel (and third number of the combination) to be between 50 and 56 - or 53.**

### Finding The Next Number

We now have one number of our combination and only two to go. Using the manipulation aid, we will now find the next number in the combination. Because wheels one and two of the wheelpack are identical, we will not know whether the next number we find is the second number in the combination or the first.

To find this number, we first attach the manipulation aid to the opening handle. Make it snug, but do not over tighten. (See photograph 4.) Then attach the rubber band around the end of the handle and around the foot of the safe. (See photograph 5.) The rubber band assures consistent handle pressure on all attempts at finding this number.



**4. Attach the manipulation aid to the handle.**

With the tool and rubber band attached to the handle, lift the handle and rotate the dial left three to four times to pick up all the wheels. Then continue dialing and park the wheels at 2-1/2 numbers past our drop-in. In our case, the drop-in is "53." So, turning the dial left, we turn to the number "55-1/2" and stop. Then rotate the dial back right to drop-in - "53." Drop the handle. This will set the handle.

With the handle in the static state, being pulled by the rubber band, attach the magnetic index marker to align with the needle of the tool. This is our index mark. (See photograph 6.) We now start to manipulate. The object is to look for a major change in the needle towards the left or latch side of the safe. This will be our next number.

To manipulate this safe, we turn our dial back to the left, 2-1/2 numbers past the 55-1/2 to 58 and then back right to the drop-in. We check the indicator. If there is no major difference in the relationship of

*Continued from page 44*



**5. Attaching a rubber band to the handle provides consistent pressure against the gates during manipulation.**

the needle and the index marker, we rotate the dial back left, adding another 2-1/2 numbers or to 60-1/2, and then right back to the drop-in. Again, we check the indicator.

We repeat this process until we get a strong movement or indication in the needle. For this safe, that indication came at the number "71." (See photograph 7.)

#### **Finding The Last Number**

We now have two numbers to our combination. Unfortunately, we do not know whether the "71" is the second or first number in our combination. So, because we have a 50-50 chance of it being either number, we are told to use it as the first number and employ a technique referred to as "abbreviated dialing." Using this method cuts down on the number of times we have to rotate and enter all the numbers in the combination to look for the opening combination.

The one rule that is clearly pointed out here is that the rotation of the dial to the number "71" must be in the same direction as when we found it. Because we were rotating left when we found "71," we must always turn left when going to that number. Because it is the first number in our combination, the turning pattern will be LEFT-RIGHT-LEFT.



**6. After setting the handle, place the magnetic index marker in line with the indicator.**

We now use a simple progression to find the final number. We first rotate right three or four turns to "71." For our second number, we add 8 to our first number or "79." Our first attempt then, is 71L-79R-53L. It does not open, we begin the progression. Because our first wheel is set at the number we want - 71 - it is only necessary to rotate back right, adding

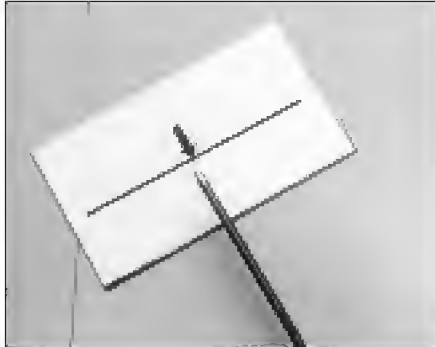
2-1/2 numbers to our second number, then return to the drop-in. For us, this is 71L-76-1/2R-53L.

We repeat this progression until we have gone through all possible numbers for the second number. Fortunately for us, the safe opens when the second number is "13." (See photograph 8.)

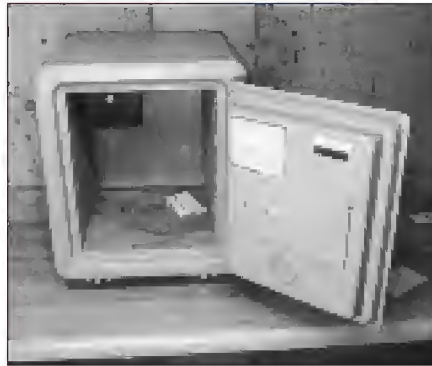




If this sequence had not worked. We would use the number "71" as the second number and progress for the first number. In this instance, the full combination would have to be entered each time. Also, the turning pattern would now switch to RIGHT-LEFT-RIGHT to keep the "71" turning the direction we found it.



**7. Our second number is apparent by the movement of the indicator. In many cases, the indicator will move as much as 1/8" from the index mark on a Sentry safe.**



**8. A successful opening.**


#### **Conclusion**

Had we not found our combination? No problem. The rest of the instructions tell us how to drill the safe open causing minimal damage and using minimal time.

Now, one word of warning needs to go out to all those who read this. The instructions and tool work - but not without a little practice! Don't go out to the field without having first worked with the tool and expect the safe to willfully submit to your

advances. But with just a bit of practice the openings average about 12 minutes.

If you plan on working your way into safe work, and plan on using this tool - read the instructions, read the instructions, read the instructions. Then practice, practice, practice. The instructions are clear and the tool works. If you are having trouble, Saber Tool is more than happy to answer questions and get you on your way to safe profits.

For more information or to purchase the *Sentry Manipulation Course*, contact *Saber Tool Company*, 2511 W. Schaumburg Rd., Ste 213, Schaumburg, IL 61094. Phone (708) 843-1017. 

**For more information  
on safes and safe  
openings check out  
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As the secrets of safe opening have been shared by the masters over recent years, the advent of new safe opening equipment has entered the market. No longer are the skills closely guarded by a select few individuals, but have been shared by true craftsman so that their abilities can be utilized by others.

**The W.A.S.P.**

Safe lock manipulation has long been the premiere skill used to measure a technician's proficiency in the field. The use of sound, sight and ultra light touch in effectively manipulating open a safe lock is a skill that needs to be practiced repeatedly if one is to be successful in opening a container without the use of drilling or force.

The largest stumbling block with manipulation is the development of a very light touch which remains constant throughout the manipulation process. A technician's fatigue or over zealousness can change his/her touch when looking for change in the contact area and can give a false reading when trying to determine a wheel's gate.

With the task of maintaining constant and even pressure in mind, the W.A.S.P. manipulation aid by LeRoy Edinburn Enterprises, has entered the market. W.A.S.P. is an acronym for Weight Adjustable Scale Pointer (See photograph 1.)

The theory behind the tool is very simple. Instead of the technician depending on his own sense of touch when reading changes in the contact area, an adjustable weight is attached to the dial via a specifically designed adapter. The weight is then adjusted to allow the drive cam to fall against the lever nose using the natural force of gravity. This exact amount of pressure will place the dial in the same spot each time. On the adapter ring, a pointer is attached to magnify the contact point's indications. A small graduated scale is attached to the safe door by a magnet with a

# Safe Opening Aids



by  
**Tom Mazzone**

*Slick tools that can aid any safe technician*

threaded screw which can be adjusted to provide for different height projections of the various safe dials. During the manipulation process, the change in contact point readings is read by way of changes in the indications from the extending pointer and the mounted scale.

To begin, one will assume that the technician using the tool has at least basic safe lock knowledge. All normal safe diagnostic functions should first be performed. Checking for stuck flies, wheel run on, broken drive pins, etc., should all be performed before beginning any manipulation attempt. This should be standard operating procedure.

Determine the number of wheels in the lock you are working on and then locate the contact area. The dial will sometimes, but not always, give a determination as to what type of lock you are working with. Again, assume nothing!

We have determined our number of wheels and defined the contact area. We are now ready to attach the W.A.S.P. We will select from the kit, the dial adapter that is most applicable for the dial that we are working on. Center the ring and attach it to the dial using the set screws provided. There is a red hash mark on the ring which tells the technician where to insert the pointer. The pointers vary in size and the one most applicable should also be chosen. Remember that the longer the pointer, the better the indications will be amplified.

We will be reading changes in our right contact point during the manipulation. There is a hole in the adapter on the left side of the ring in which to attach the rod that carries the adjustable weight. Ideally, we want to use the lightest weight adjustment for the lock being worked on. Sliding the weight on the shaft controls the weight being applied.

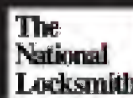
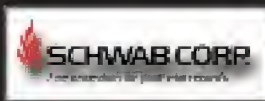
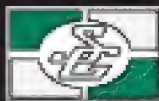
**D**ial all wheels left to zero and then back right to your contact area. Adjust the



**1. The W.A.S.P. manipulation aid by LeRoy Edinburn.**

**Continued on page 54**





### Continued from page 49

weight to allow the drive cam to fall until just the lightest touch is obtained against the right contact point. Set up the magnetic scale to read against indications of the pointer. Use whatever techniques of manipulation that are most successful for you, i.e. an all wheels left or all wheels right movement or simply begin by graphing the third wheel only. Record all indications on either a graph or note pad.

**R**eview your changes in indications and use standard procedures to determine the combination and open the lock. A word of caution. Be careful not to disturb the magnetic scale throughout the procedures because all indications are read relevant to the scales position for the wheel being read. If you accidentally bump the scale out of position, the graph for that wheel will have to be started over from the beginning.

Whatever your technique, the WASP is designed to magnify indications in the contact area. Its purpose is to maintain an even pressure throughout its use. This tool is invaluable on locks that have lighter lever springs which are used to deter manipulation.

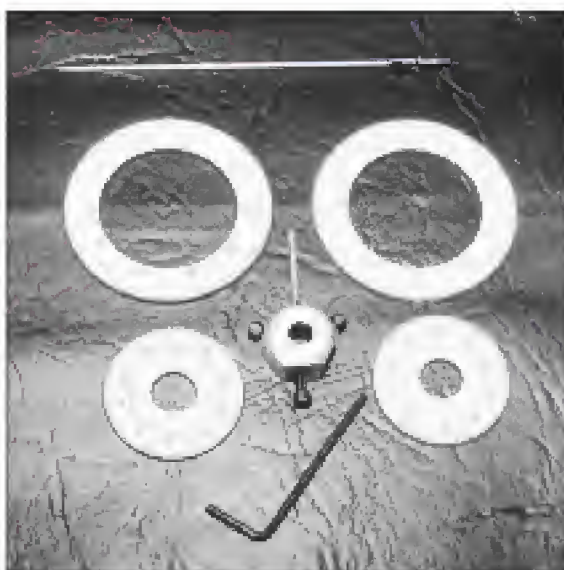
The tool can also be used on in-floor safes without the use of the adjustable weight. This will require the technicians touch but the use of the scale and pointers will help magnify the contact point readings.

This is an excellent tool that I feel should be added to a safe technician's tool arsenal. It is well made and complete with instructions and sample manipulation charts.

This tool will not open the lock for you and should be used by someone with at least basic knowledge of safe lock manipulation and wheel action. It does what it advertises to do and can really build confidence for someone who has marginal safe manipulation skills.

### Dial Transfer Tool

Another well designed tool by LeRoy Edinburn Enterprises is the



2. The Dial Transfer Tool by LeRoy Edinburn.

Dial Transfer Tool. Transferring numbers after drilling a safe can be confusing at times, and can sometimes lengthen the time it takes to open a container. Depending on what drill point location is used to insert the technician's borescope, it is necessary to add or subtract numbers to bring the wheel's gates to the drop in point. The use of the Dial Transfer Tool will eliminate that frustration (See photograph 2).



3. The Pro Amp Contact Amplifier by Lockmasters.

**T**ransferring numbers is the process of moving the gates of the wheel pack where they are scoped at, to the lock's drop in point. It is often necessary to drill a scope hole in an area that will provide the most safety from damaging the lock while drilling. This hole can sometimes be 12 or more numbers away from the physical drop in point

It should first be determined that the technician has tried all other possibilities before beginning to drill. It should also be advised that the technician use good sources of information on drill point locations, i.e. Dave McOmie's Safe Opening Manuals. Quality reference material is as important as any other safe tool being used.

**A**fter the dial and dial ring have been removed and the scope hole drilled, install the pointer assembly to the spindle and run the wheel pack until the gates are all lined up with the center of the drilled hole. Remove the pointer assembly and install one of the magnetic safe dial rings, centering the zero line with the drilled hole. Reinstall the pointer assembly and align the pointer to the zero line. Be sure that the zero line is maintained at the center of the drilled hole. Tighten the pointer assembly to the spindle.

Run the combination again and record your combination numbers with the gates at the drilled hole. Determine what the drop in point is for the lock you are working with via one of the reference manuals. Now turn the magnetic dial ring to align zero with the drop in point of the lock. Dial your previously recorded combination to the zero mark and oscillate the dial.

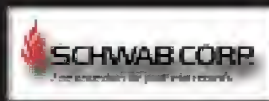
It may be necessary to dial the combination one or two numbers higher or lower and oscillate the dial to allow for any variance while drilling or sighting the wheel gates.

Adding or subtracting numbers to bring a gate to the drop in point is determined by which side of the opening index the hole is placed on. This is where the confusion comes in and can be eliminated by using the transfer tool. It can save additional time and a great deal of unnecessary dialing.

### Pro Amp Contact Amplifier

A contact amplifier is an invaluable tool to the safe technician. It can be used for a variety of different

Continued on page 56



#### Continued from page 55

diagnostics as well as determining contact points which cannot be readily defined.

The Pro Amp from Lockmasters is an excellent quality, mid priced amplifier which is easy to set up and use. It gives high quality audio processing as well as filtering out unwanted sounds (See photograph 3).

**T**he amplifier is powered by a single 9 volt battery and has a self test switch to determine the battery's life. The microphone has a magnetic base allowing it to be easily attached to any ferrous metal surface. The microphone should be placed as close to the contact area on the safe door as possible. The included headset is adjustable with foam rubber ear pads.

The volume control gives a wide range of adjustment for the individual operator's comfort and hearing level. This is a delicate piece of audio equipment and should be treated with care. It is packaged in a very durable, hard plastic case with foam lining



**4. The Read Eze Manipulation Aid by Lockmasters.**

designed to give the serious safe technician many years of dependable use.

#### Read Eze Manipulation Aid

Manipulation can be very frustrating and can try the patience of beginning safe technicians. One of the biggest problems, much like lock cylinder impressing, is not being

able to see the indicating marks. The Read Eze by Lockmasters can greatly enhance the safe lock's indications by the use of a powerful, magnetically attached magnifying glass. The Read Eze comes with the magnifier and magnet as well as adhesive backed markers to place on the safe dial and dial ring (See photograph 4).

To use the tool, the magnifier is placed for the technician's own optimum viewing. The contact points are determined and an indicating marker is placed on the dial at the specific contact point being read. The graduated dial ring indicator is placed in line with the opening index. The indicator will allow each number on the dial to be split into one eighth increments, further amplifying the indications.

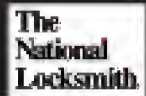
As with any manipulation aid, a solid background in safe lock service and wheel action should be known by the technician. This tool depends on the technician's light touch and consistency. It greatly reduces eye strain and fatigue and is very simple to use. Used properly, it is an excellent manipulation tool.



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### The Clam

The Clam by Lockmasters is not a safe opening tool, but a very interesting one using some old concepts. The tool is designed to let the technician take a clay impression of a key and then either generate one from code or a lead replica can be cast using the materials supplied in the kit (See photograph 5).

The Clam Kit comes with clay, a ladle, a bar of lead and spatula, baby powder and a candle. The Clam itself is a plastic, hinged type of tool that resembles a small book. It has two hollow cavities that are used to receive the clay.

**T**o use the Clam, first fill both sides of the Clam's cavities with clay. Overfill the cavities and then level them off with the spatula. This is an important step, so it is critical that it is done with care.



5. The Clam impression tool by Lockmasters.

Sprinkle a light coat of baby powder to aid in releasing the two halves.

Lay the key to be copied onto the Clam and close the unit firmly and evenly. Open the Clam and take care when removing the key. The clay impression can now be carefully decoded using a dial caliper and cut by code.

There are complete directions in the kit to cast a lead replica of the key.

While the directions are basic, there are some important tips to be given attention to in order to insure a quality casting of the key to be copied. After clean up the led cast key can then be put into a key duplicator and copied just as a technician would a standard key.

This tool can be a real convenience if a customer needs a key duplicated on a job site and cannot permit the technician to take it with him. An example of this can be, for instance, a safety deposit box key or a cylinder key that cannot be removed from the site. If the locksmith needs special equipment not mounted on the service vehicle, he can cut the key back at his shop and then drop it off.

The uses of this tool is limited only by one's imagination. It can also be used as a training aid for apprentices in the shop to learn code cutting and proper duplicate key generation. **TRI**



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**SAFE OPENING TOOLS**

## WELCOME TO THE SHOW!

Low-voltage applications and the tremendous opportunities for expansion that they provide for the security professional who is already handling low-voltage installations is the focus of the ISC Expo/Las Vegas, March 13-15, 1996 at the Sands Convention Center in Las Vegas, NV.

ISC Expo has four designated areas on the Show floor — Security Hardware, Home Systems, Closed Circuit Television and General Security and Fire Protection — which bring together companies and products of common interest. The Security Hardware Pavilion will feature locks, bolts and related products, while other areas of the show will focus on such diverse profit opportunities for installers as home theater, intercoms, central vac systems and other low voltage add-ons.

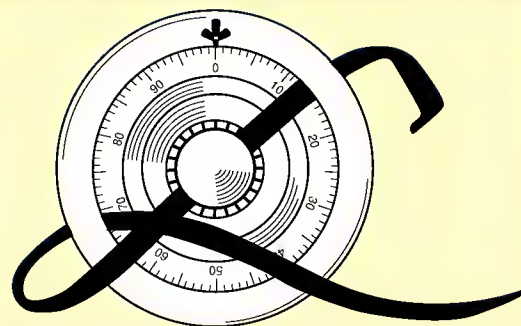
A full conference program is held in conjunction with the show, beginning Tuesday, March 12. Six technology and business tracks will be offered, including Access Control, Home Automation, CCTV, Data Voice dc Video, Business Management and Sales and Marketing.

This Show Guide, a special supplement of *The National Locksmith*, contains features and product information about some of the opportunities at the ISC Expo. Each advertiser and "Product Showcase" participant has been assigned a Reader Service number. To obtain more information about these products or services, circle the appropriate number on the RAPID REPLY CARD at right and mail it back to *The National Locksmith* at 1533 Burgundy Pkwy., Streamwood, IL 60107.

You can also fax your request to us at (708) 837-1210, or send your request via electronic mail to our Internet address, natlock@aol.com. If you are on America Online, you can address us directly at NATL LOCK.

The exhibits offer 78,000 square feet of displays. Show hours are 10 a.m. to 5 p.m. on Wednesday and Thursday, March 13 and 14, and 10 a.m. to 3 p.m. on Friday, March 15.

For more information about attending the ISC Expo, call 203-840-5602.



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# Aiphone Video Sentry

*The perception and purpose of an intercom system has come a long way since its inception. Video intercoms of today have far greater applications than just two way communication.*

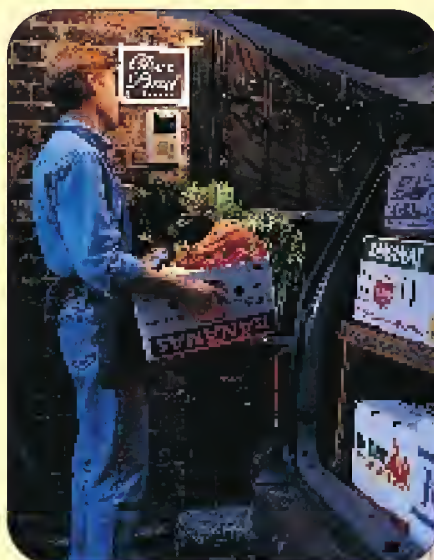
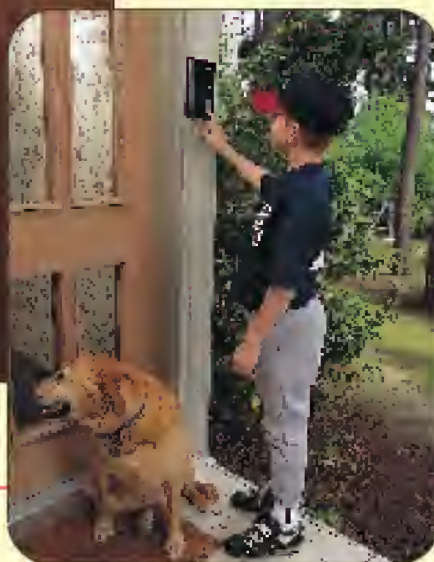
**by Ron & Chris Curry**

**W**ith the increased need for access control in the industrial, commercial and residential marketplace's, an intercom system is seldom considered for the application. Far too often, intercom systems are perceived as only a communication tool and not as a security access device. While that may have been true in the past, the new video intercoms of today are much more than just a communication device.

Aiphone offers reliable intercom systems for virtually every internal communication, access control, security and paging need. Applications for homeowners, apartment dwellers, banks, parking garages, airports, offices and industrial plants are just a few. With more than 30 standard configurations and room for customization, Aiphone can create a system for virtually any application.

The intercom system we will be covering is Aiphone's Video Sentry, with pantilt camera, model MYS-1CD. An extremely nice feature of this system is the ability to use only two unshielded wires between the master and door station to operate. Its as simple as wiring a door bell. While this unit is not for every situation, it does have many attractive features.

The video picture quality is very good to excellent - even in low light situations. The audio quality is very good as well. We have used Aiphone products for years, and they have held up extremely well in commercial as well as residential applications.







1. Connecting wires are easily secured to the camera/intercom before being installed into the mounting box.

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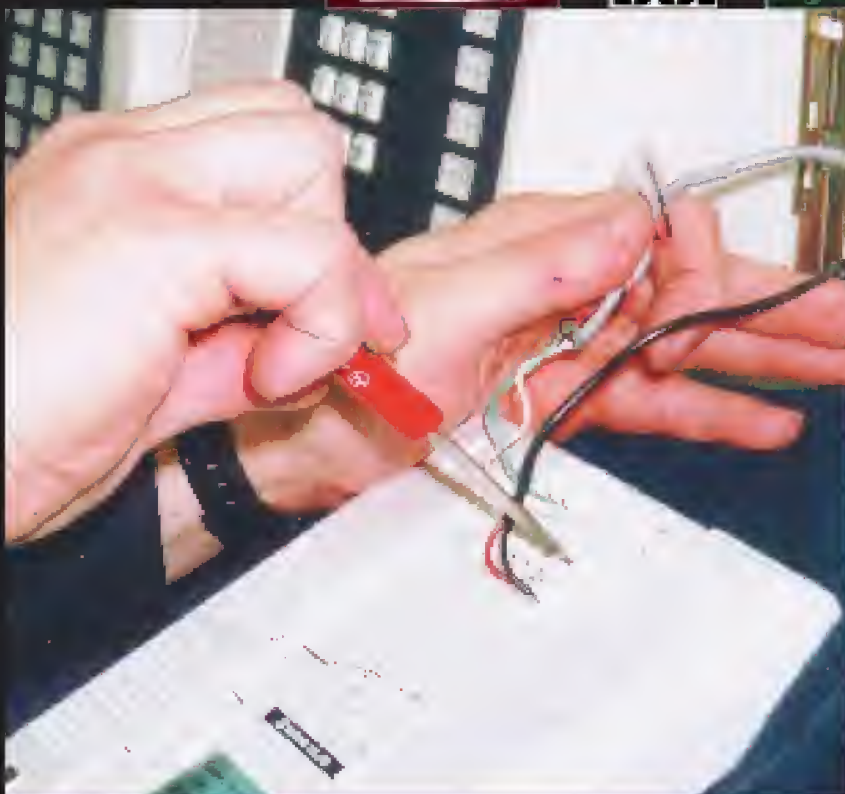
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**2. The master station has a control button for an electric door release.**

When you are selling an intercom system to your customer, you need to consider many things:

- Can an intercom enhance the security at a given location?
- Is audio communication sufficient
- Where will the location of interior and exterior components be?
- How many inside stations are needed?
- Distance between components (so you do not exceed manufacturer's specifications)
- Is video a consideration for the application
- Difficulty of wiring runs
- Is remote door release desired
- What are the budget limits? How much is the customer willing to spend?

These are all very important factors to consider before selling or installing a system.

**3. Completed installation of the master station.**



**F**ollowing the manufacturer's instruction, we found the installation of the "Video Sentry Pantilt" to be fairly easy.

The customer selected an exterior location at a rear door (brick surface) to mount the camera/ door station. The interior location for the master station is at the reception desk ( Vertical mount on drywall surface.) Aiphone recommends the door station camera be mounted in an area shielded from direct weather such as rain or sun.

Once we determined these locations, we ran our cable above the suspended ceiling from the door station to the master station. We then wall fished the cable down to the reception desk and pulled through the drywall. Then we placed a hole through the masonry wall for the exterior cable (3/ 8" hole is adequate).

The camera/door station was a surface mount installation on brick, so we installed Aiphone's black mounting box (part #MYW-R) being careful to pull the cable through the opening in the back of the box. When installing the mounting box, be sure to level it before you fasten it to the wall, it makes the installation look more professional. To secure the mounting box, holes were drilled into the brick and masonry screws were used to anchor it.

The wires were then easily and quickly connected to the door station camera (part #MY-DC) and the entire unit was mounted and secured to the mounting box. (See photograph 1.)

The security cover is a trim plate that fits over the camera/intercom. The cover is locked in place with a panel fixer that is inserted in the bottom of the security cover. At this point the door station install was complete except for a bead of clear silicone caulk applied around the top and sides.

From here we proceeded to the reception desk where we had fished the cable through the wall to the reception master station. The mounting bracket for this station was secured to the wall with drywall anchors and screws.

We terminated the two wires from our door station and the two power wires from the power supply (part #PS-18YCA). There was no door release (electric strike, etc.) on this installation, although the master station has a control button for this (See photograph 2.)

The entire system was powered up by plugging the transformer into a 120 V.A.C. power strip and the installation was complete. (See photograph 3.)

Manufacturer's recommended wiring distance between the components is 165' with 22 awg cable, or up to 330' with 18 awg cable (2 conductors, not twisted/ not shielded).

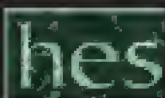
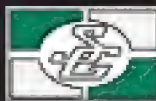
Aiphone is the world's largest manufacturer of intercom systems, offering a wide range of video/intercom systems and components that can be mixed and matched to achieve many different results.

The next time your customer needs an access security system, now you can offer more than just locks!

*For more information about Aiphone contact:*

Aiphone Corporation, 1700 130th Ave, N.E., Bellevue, WA 98009-9860. Phone (206) 455-0510 **TNL**





# PRODUCT SHOWCASE

The ISC West Show - March 1996

Circle the numbers on the RAPID REPLY CARD and send it in.

## Sentex Radio Access System

Sentex is pleased to announce the introduction of the AutoKey System, a very low cost, stand-alone radio controlled access system, as well as a complete line of AutoKey transmitters. The AutoKey System can control up to three gates (1-button transmitters can be programmed to activate any of the three gates, while 2-button transmitters can activate each gate individually). The system also has a battery-backed, 365 day clock which provides automatic, scheduled activation of the systems three relays. The AutoKey has standard RS 232 and RS 422 printer outputs, which allow all system activity to be recorded in real-time on a serial plain paper printer.



CIRCLE NUMBER  
301



include stairwell doors, elevator lobby doors, perimeter doors and communicating bathrooms.

Fail-secure electric mode is available for applications such as inner office access control, mantraps, money counting rooms, computer rooms, laboratories and detention applications.

Standard features include 5' cable with socket and connector. Standard monitoring outputs include: Locked/unlocked status and door position status at no additional cost. Options include request-to-exit output and latch position status.

The 7800 may be provided complete from the factory or lock body can be sent to SDC for electrical conversion. Non-electrified locks are available with request-to-exit output and latchbolt monitoring.

## STI "Stopper®" Helps Protect Fire Extinguishers and Other Fire-Fighting Gear

The new Mini Theft Stopper® is being announced by Safety Technology International Inc., of Waterford, Michigan. It features a "stop sign" design which STI says in itself helps to deter mischief.



CIRCLE NUMBER  
303

The STI Mini Theft Stopper has a unique versatility that allows for the protection of a wide range of equipment. It can be used on fire extinguisher cabinet doors or cabinets housing fire hoses, sprinkler shut-off valves and so forth—as well as on gun cabinets and medicine cabinets.

The Mini Theft Stopper (STI 6255) also features a special clip that, when placed on the fire extinguisher pin, prevents malicious activation of the unit while still attached to the wall.

This model, with both reed switch and special clip included is inexpensive yet highly effective, states STI.

## Northern Computer's PAK-Time

Northern Computers' PAK-TIME Plus is a time management system to meet the sophisticated requirements of larger time and attendance systems at an affordable price.



CIRCLE NUMBER  
304

Northern Computers' PAK-TIME Plus gives you an automated method to process employee time. It eliminates the conventional timecard, therefore eliminating lengthy clerical time and the mistakes associated with processing timecards. The system calculates employee's total hours, overtime, absenteeism, tardiness and automatically applies all pay policies for holidays, vacations, etc.

With conventional timecards, payroll errors run from 0.4% to 6% of payroll. With PAK-TIME Plus you are ensured 100% accuracy in gross payroll, eliminating wasteful costs.

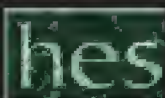
Electronic time clocks are connected to a PC that automates your payroll data collection and processing

ISC WEST SHOW PAGE 10

## New 7800 Series HiTower® By Security Door Controls

The new SDC 7800 Series HiTower® Electric Lock features positive Failsafe operation combining security with Life Safety. Unlocking is insured by signal from Fire Life Safety system. HiTower® applications





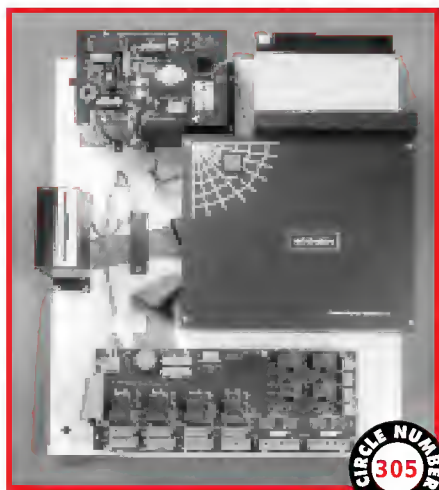
functions. The time clock acts as a data collection device. Every punch is stored in the clock's memory, then the computer system automatically collects this stored data from each time clock.

PAK-TIME Plus, also maintains a complete personnel profile on every employee. Information on employees who don't punch time clocks can also be stored, and these employees may also be paid through the system.

PAK-TIME Plus allows you to print Exception, Overtime, On-Premises, Payroll and other important reports. PAK-TIME Plus allows for an unlimited number of employees to be added to the system.

#### **Micro-Web 4 Electronic Access Control**

Control Monitor Systems has added a new member to the Micro-Web family of Electronic access control or card access equipment. The Micro-Web 4, stand-alone system is designed specifically for the four to eight card reader application. Due to the power of the 386SX processor board and the up to 8 MB of RAM, we can offer the user a powerful access control system in a small affordable package. With the capacity for 6000 card holders, 100 time zones, up to 32 input points and 8 programmable output points, we have designed a system that offers your small to



CIRCLE NUMBER  
305

medium sized customers a truly secure solution to controlled access. The user can quickly and easily modify card holder privileges, add or delete cards, set up time zones or select readers.

Designed with a true-windows user interface, the set up and programming of the readers and card holders is remarkably easy. Simple in design yet sophisticated in features. Easy to set up and program, this system offers the customers a reliable solution that can expand to grow with customer needs.

#### **Cardkey's PEGASYS 1000 Security Management System**

Cardkey Systems, Inc. launched Release 3.1 of its high-performance security management system, PEGASYS 1000, on July 31, 1995.

PEGASYS 1000 Release 3.1 is a powerful security management system capable of full integration with Cardkey Reflection Video Imaging system, Burle Allegiant CCTV Controller, X-Terminals and the Radionics 6500 Alarm Receiver. It also offers Elevator Control, Dial-up operation, and Host Redundancy features.



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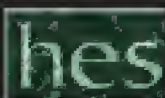
The system allows up to 8 workstations (9 users maximum)

## **NATIONAL AUTO LOCK SERVICE, INC.**

**National Auto Lock Service, Inc. offers a wide range of equipment and services for the Automotive Locksmith. From tools and hard to find key blanks to transponder programming, we can take the mystery out of car service. We accept credit card orders, and can ship COD. Contact us for the latest in automotive technology.**

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including the host system) on a local area network to control and monitor a comprehensive range of security management functions, including video imaging and badging, CCTV control and Radionics alarms. With Reflection integration, cardholder records are shared throughout the entire PEGASYS network. In addition, CCTV cameras can be controlled from any PEGASYS terminal while X-Terminal integration provides a low-cost means of connecting remote workstations and improving system performance.

#### Securitron's New DK-26

Securitron Magnalock Corporation introduces the new DK-26 series keypad system for medium to high security locations. Using the extremely durable water proof, narrow stile door frame size, cast stainless steel keypad technology from its previous version, the DK-26 incorporates a significantly upgraded central processor unit with features such as:

True 10 digit keypad operation, Non-volatile EEPROM memory, Sixty codes programmable from keypad, Programmable LED's and Beeper, Exit request input (REX) and more.

CIRCLE NUMBER  
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The DK-26 is available as a complete system with separate CPU controller housed in an easy to service metal cabinet placed inside the protected area. The keypad is available in brushed stainless steel or black power coated finishes. An optional spyshield is available to prevent unauthorized viewing. For indoor use, the DK-16 is available which fits conformably into a wall switch size box.

Both the DK-26 and the DK-16 are backed by a two year warranty and Toll Free technical support for the USA and CANADA.

#### Terminus® Wall Kit By Litton

Litton Security Systems now offers a wall kit that mounts on wood, cinder block, brick or steel walls to provide superior perimeter security in these challenging applications. As with all of Litton's Terminus products, the wall kit is part of our proven perimeter security system and is UL and ULC listed.



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Continued on page 72  
(ISC WEST PAGE 14)

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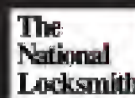
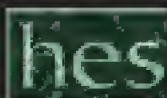
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**Continued from page 70 (ISC WEST PAGE 12)**

The SP3224 Wall Kit consists of a shock sensor enclosed in a conduit housing with a cover, gasket and a plastic spacer that allows the kit to be mounted to a wall.

The shock sensor in the Wall Kit is none other than Litton's dual-contact SP3237 Terminus Shock Sensor. This hermetically sealed sensor eliminates the moisture and airborne contaminants that can cause open or short conditions in other sensors. All Terminus shock sensors come with a ten year limited warranty.

As ISO 9001 Certified facilities, Litton's two Blacksburg plants provide quality products consistently reliable performance. This certification applies to the design, development and manufacture of the products produced in the two facilities including our wall kits.

#### **IEI Power Supply**

International Electronics, Inc. (IEI) announced the introduction of its new Access Control Power Supply with built-in Tamper Circuit. The new power supply takes the mystery out of access control wiring and electrical noise suppression. It provides separate filtered and regulated 12 volt power for access control equipment, magnetic locks, electric strikes and a battery charging output. Lock power can be switch selected as AC or DC. The new Access Control Power Supply includes a built-in tamper circuit as well as suppression components for electrical noise. **TEL**



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# BUSINESS BRIEFS

## News from the Locksmithing Industry



**H**PC is proud to announce their **12th** and final winner in their monthly Codemax™ drawing. HPC has awarded a Codemax™ computerized key machine to **Daniel Musgrave** of **About Locks in Arlington, Ohio** on **February 1st**. It was purchased through **Foley-Beslaw in Kansas City, Missouri**. HPC would like to thank all the participants in the "Win a free Codemax™ Contest" The grand total of over \$47,000 has been awarded. The promotion was a great success!

**L**ockmasters Professional School has developed its resident course schedule for 1996. The school will have six different classes hosted in four locations nationwide. The resident school will be held on various dates through the year in Lexington, KY, San Diego, CA, Washington, D.C. and Orlando, FL.

Information about specific classes and dates, or Lockmasters' new CCTV course, are available from the school at 800-654-0637.

**S**argent & Greenleaf is pleased to announce the launch of their home page on the Internet. Locksmiths now have access to S&G's electronic combination lock operational and technical support data be either calling the toll free help line

(800-826-7652 ext. 500) or by accessing the new web site which offers the 6100 series "troubleshooting guide." The S&G web site address: <http://www.sglocks.com>.

**D**aniel P. Connor has been named **vice president finance and chief financial officer** for **The DORMA Group**. Daniel P. Connor has years of experience as controller/ chief financial officer in the door and hardware industry, including five years as controller for DORMA Door Controls, Inc., from 1983-1988.



### **S**outh Jersey Locksmiths Association

The following named have been elected to serve as the Executive Board.

For the office of President, Richard R. Olive of R&W Lock, Berlin, NJ Vice President, Paul L. Palmisano of Seashore Locksmith Shop, Pleasantville, NJ Secretary, Harry G. Pyett of Hart Security, Pemberton, NJ Treasurer, William Grover of Access Lock & Safe of Lindenwold, NJ Sergeant at Arms, Alexander J. Schulke of Access Lock Service, Inc. of Philadelphia, PA

**A**kron Hardware Consultants, Inc., recently announced the retirement of the company's founders, **Charles R. Judy and Joseph E. Orihel**, effective November 1, 1995. The two men will, however, maintain their positions as members of the company's Board of Directors.

Headed by **Kenneth E. Orihel, President**, the new management team includes Thomas R. Orihel, Vice

President of Operations and Nancy L. Murray, Secretary-Treasurer. Each has been with Akron Hardware for many years — Ken Orihel as Vice President of Sales, Tom Orihel as Director of Marketing and Nancy Murray as Controller.



**C**orKey has been accepted as a GSA Vendor under contract GS-07F-7841C. CorKey has been a provider to the military of card operated locking devices. The GSA listing establishes CorKey as a recognized vendor and exposes its product line to U.S. government installation worldwide



The company has established an 800 line for GSA inquiries - (800) 622-2239. **TNL**



# The LIGHTER Side

The Last Move



by  
**Sara  
Probasco**

**"H**ow would you like to move?" Don inquisitively inquired one day.

Looking up at his smiling face I replied, "You've got to be kidding!" He was still grinning that silly grin that usually means he's serious but can't quite bring himself to say so. "We can't move. We just got through adding onto the house," I sputtered. "It's out of the question."

"The store," he said.

Puzzled, I stared at him again. He was still grinning, but now he seemed a bit nervous. "What about the store?"

"What would you think about moving into the empty space next door?" he recanted.

"Why would we want to do that?" I asked suspiciously. I was beginning to smell a rat.

Don shrugged nonchalantly and shoved his hands into his pockets. Then he mumbled something under his breath.

"I'm sorry, I couldn't understand what you said." With that same grin back on his face, he squared his shoulders, took a deep breath and blurted, "Steve's negotiating to lease most of the building to Blockbuster Video, and they want our space included in the deal."

"Fine landlord we have," I snorted. "How can he do that? What about our lease with him?"

"Whoa, now! Steve's being real nice about the whole thing. If we really don't want to move, he'll tell Blockbuster they'll just have to work around us." He paused. "But it could mean they'll turn down the lease, and I'd hate to see Steve lose out on such a nice deal."

"So would I." I thought about it for a moment. "Well, what do you think?"

"I think this could be a sweet deal for us, too. Steve's offering us about half again our present space at the same lease price. Besides that, we'll be able to design the whole interior

the way we want it. You know how often we've wished we could arrange our space a little differently. Well, here's our chance. And just think of all the junk we can throw out that we've accumulated over the years." Looking at Don's eager face, I couldn't hold out any longer. "So, when do we start packing?" I asked, smiling.

"No rush. We have three weeks to be moved," he replied.

"Three weeks!"

"Blockbuster wants to start remodeling by the first of next month, so Steve's pushing to get us out of their way as soon as possible. In fact, he's got workmen lined up to start tomorrow morning. We just need to let him know where we want the bathroom, and the offices, and all the divider walls. He's even agreed to put in a four foot delivery door for us at the back. Isn't that great?"

Indeed it was.

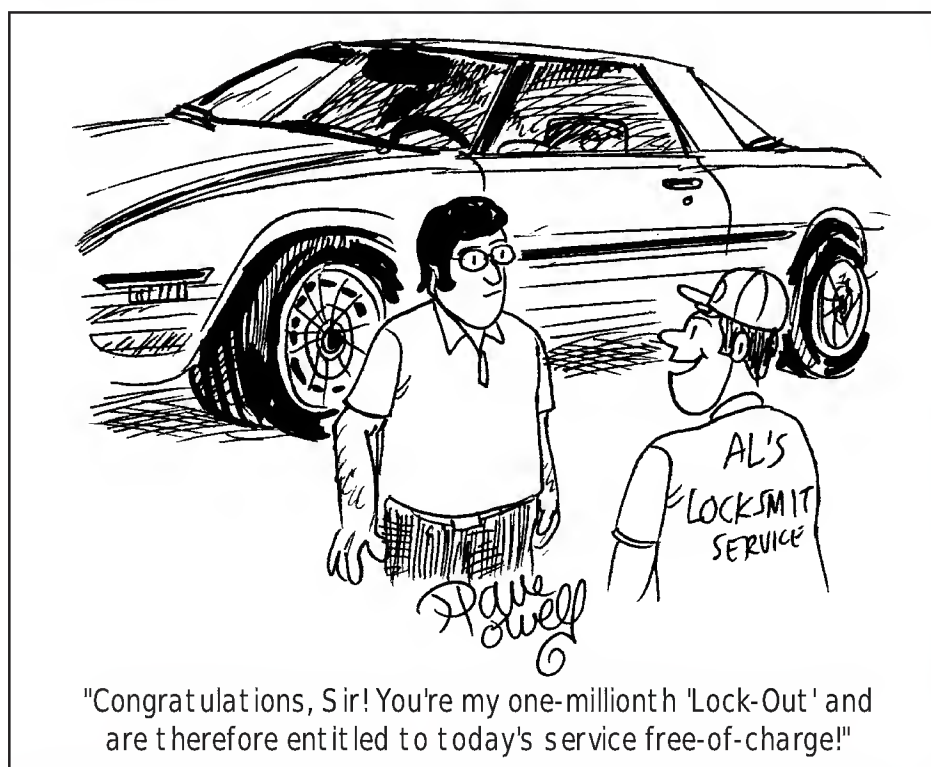
How many times delivery men had struggled to bring a large safe in

through our present door! Even trying to dolly customers' foot lockers or file cabinets through the door, around the counter, and into the bench area of our present shop had resulted in skinned knuckles and a lot of X-rated expletives. A new store that could be custom-designed was sounding better all the time.

That evening we spent several hours drawing and redrawing plans for our new store space. Our present offices were bulging with computers, copiers, and fire-file cabinets that the rooms had never been designed to accommodate. As for the sales area, we had learned a few things about display and space design since moving into our present location, ten years ago. Now maybe we could put some of that knowledge to good use.

"You know, I remember an experimental grocery store in Mississippi, back in the sixties," I said.

"Oh, yeah? I'm afraid, that was before my time," Don snickered.



I ignored him and continued." That was back when computers were just beginning to catch on, commercially. This innovative grocer displayed sample goods on his shelves behind glass panels: cans, boxes, even plastic replicas of fresh fruits and vegetables. When the customer came in, she was given a computer card with her own unique number on it...."

"...And the credit card was born!" Close.

The customer walked up and down the aisles and inserted the card into a slot beneath any item she wanted to purchase. By the time she reached check-out, her computerized bill was ready and her sacked groceries came rumbling out from the back in a cart, ready to be carried out."

"Sounds great."

"Too bad the shoppers didn't think so. The place closed down after about six months. Word was, customers didn't like the idea of not being able to handle the merchandise. They wanted to pinch the fruit, shake the cans, read the labels...."

"...Squeeze the Charmin."

"Exactly."

"Interesting, but what does this have to do with our moving project?"

"I think we should redesign our sales area, put more merchandise out where the customers can pick it up, handle it...."

"...Walk out with it."

"That is a consideration, but I really can't see shoplifting as a major problem around here, can you?"

"Probably not, especially if we arrange the displays and shelving units with surveillance in mind and tie our Rotweiler near the exit."

It was time to ignore Don again. "I think increased sales will more than compensate us for any potential losses due to sticky fingers. Besides, we have those domed security mirrors. And the layout of our work stations has us facing the customer area, so we can keep an eye on things."

"You're right." Don walked to a large box at the back of the shop and rummaged in it a few minutes. Then he stepped back, pulling a long, black cape from its depths."

"What in the world...?" I asked.

"My Batman cape," he replied smugly.

"Whatever for?"

"Well, I figure, if we're going to be out there watching the customers, that means the customers will be watching us, too."

"A reasonable assumption."

"That could take some of the mystique out of what we do, if we're not careful." He dug deeper in the box and produced a black cardboard top-hat. "For years, whenever a customer asked how I do certain things, I've said 'It's magic!' If they're going to be watching me work, I guess I'd better put on a show." He donned the cape and hat. "Ta-da!" he said, striking a dramatic pose. "To the delight and amazement of all, The Great Probasco will now perform his famous disappearing act." And with that, he disappeared into his office for the rest of the day.

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# TECHNITIPS

## Helpful hints from fellow locksmiths

Send in your  
tips and win.

### HOW TO ENTER

Simply send in your tip about how to do any aspect of locksmithing. Certainly, you have a favorite way of doing things that you'd like to share with other locksmiths. Write your tip down and send it to: **Jake Jakubowski, Technitips Editor, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107** or send your tips via E-mail to the E-mail address posted in the upper right hand corner of this page. So get busy and send in your tips today. You may win cash or merchandise. At the end of the year, we choose winners for many major prizes. Wouldn't you like to be a prizewinner in 1996? Enter today! It's easier than you think.

### BEST TIP OF THE MONTH

If your tip is chosen as the best tip of the month, not only do you win the All-Lock A-6200 Auto Service Kit, but you also automatically qualify to win one of the many excellent year end prizes!

### EVERY TIP PUBLISHED WINS

Yes, every tip published wins a prize. If your tip is printed, you'll win \$25 in Locksmith Bucks. You can use these bucks to purchase any books or merchandise from *The National Locksmith*. Plus, be ready for Jake's Grab Bag prizes! Remember, everyone wins. (Please remember to include your complete mailing address - we cannot mail prizes to P.O. Boxes.)



by  
**Jake Jakubowski**

## America Online: NATL LOCK

Use the above address if you are on AOL.

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## These Prizes Awarded Each Month!

- All-Lock A-6200 Auto Service Kit
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- HPC Pistolpick
- Sargent & Greenleaf 4400 series safe deposit lock
- Silca Keyblanks (100 Blanks)
- Pro-Lok PK15 Professional Lock Pick Set
- Tech-Train Training Video
- Sieveking Products EZ-Pull GM Wheel Puller
- Major Mfg. Products
- The Sieveking Auto Key Guide

It's hard to believe that spring is almost upon us. It seems to me that it wasn't that long ago when Christie and I were enjoying the sights and sounds of Orlando. Now here we are already making our plans to go to New Orleans (N'awlin's) for the ALOA convention in July! It's going to be a great time.

With time going by faster than a hen being chased by a fox, I know you all have just plumb forgot that you were going to send me a tip last year on something that you wanted to share with fellow locksmiths. Well, don't drag your feet too long, because before you know it, it's going to be too late to qualify to win one of the fantastic prizes *The National Locksmith*, is going to give away at the end of the year.

Not to mention the fact that if you do send me a tip that I can use in this here column, you will miss out on a great monthly prize, some Locksmith Bucks and a really neat multi-tooled pair of folding pliers!

Last but not least, you might even win one of my grab bag prizes. That could be anything from a window lock to a high-dollar pinning kit from a major manufacturer.

The interesting thing about the grab bag prizes is, you just never

know what might come out of the bag. I get the prizes from manufacturers and suppliers that send me products to evaluate or just to give away as a prize to one of my lucky tipsters. This means a grab bag prize can be a real surprise to some lucky person like you!

If you are serious about participating in this "Technitips" column and would like the opportunity to win something, then you just have to sit yourself down and write me a letter, or E-Mail me your idea!

And folks, I really don't want you to think I'm beating a dead horse, but please remember to include your shipping address (No P.O. Box numbers.) We will not send prizes to P.O. Box numbers.

Speaking of which: several locksmiths wrote me letters telling me that they didn't have a physical address to send the prizes to. In fact, one or two of the folks lived on islands and only had a P.O. Box number. A couple of them did give me addresses on the mainland where they received their freight or UPS delivers. That's what we want.

Now, I've been nagging you plumb to death about P.O. Boxes and physical addresses, and I do apologize if some of you might be tired of hearing about it, but no

matter how much I say it, some people will still send me a P.O. Box number as a shipping address.

I promise that I won't say any more about this issue unless it gets to be a problem again.

Anyway, do me a favor and get your pencils and paper out or crank up your PC and get that tip or idea on its way to me right now. Y'all heah me now?

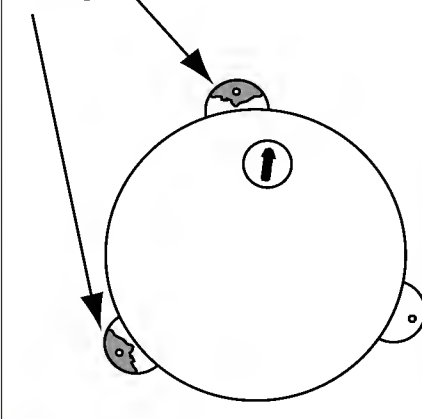
#### All-Lock Chrysler Kit Winner: **Diebold Cover Tab Repair**

I was called to service a Diebold round door safe with a tri-bolt arrangement and an S&G 6663 combination lock on it. The lock was malfunctioning, and when I removed the back cover from the door, we found that two of the three tabs that hold the 6663's cover plate on, had broken off. This allowed the cover plate to tip and prevent the lock from functioning properly.

Not having any idea where I might be able to obtain parts (If they were even available,) I decided to see if

there was some practical way of effecting a repair, without resorting to long delays caused by a wild-goose chase for parts.

SHADED AREA INDICATES  
BROKEN PORTION OF  
"TABS"



**Illustration 1**

As you can see in illustration #1, the lock cover plate has three tabs which set on the retainer screw posts. This also served as a guide posts for the locking cam plate on this safe head. In the illustration, the shaded areas on the tabs indicate the broken portion of the tabs.

I used a hacksaw - laid horizontally - to the broken tabs and cut a groove into the lockcase cover. I widened this groove to a width sufficient to accept the edge of a small washer.



**Photograph 2.**

As you can see in photograph #2, the washer is large enough to keep the cam plate in position without rubbing the cam and preventing it from throwing or retracting the bolts. A liberal application of Lock-Tite, keeps the screws from loosening. The washer resting on top of the remaining portion of the broken tab inserted into the slot that I cut, securely holds the lock cover plate in position.



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The repaired safe has been in service now for several months without showing any signs of problems or failure.

George Lazich,  
Wisconsin

**American Lock And Supply Certificate Winner:**

**M.A.G. Safe Adaptation**

We recently sold a Gardall - Model FL1337C - Double Door Depository safe. The customer requested that we install a LaGard 2200 Key Lock on the bottom door.

When we removed the dial ring, it became obvious that Gardall does not apply paint to that area of the door. Apparently, the lock is installed before the door is painted. Normally that would not create a problem, except, in this case. The unpainted area on the Gardall door was 3-3/4" in diameter, and the escutcheon plate for the LaGard 2200 was only 2" in diameter. Since the safe had to be delivered the next day, we did not have time to custom fabricate an escutcheon for the LaGard that would hide the unpainted area.

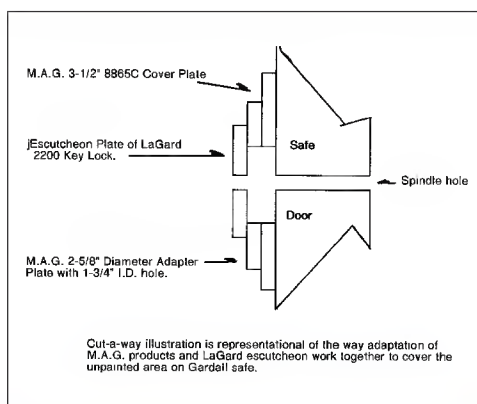
I hit upon the idea of using two cover plates from M.A.G. Engineering. I used an Adapter Plate (Part #8860C) which M ag recommends for reducing the diameter of a crossbore, and a M.A.G Cover Plate (Part #8865C) which has a 3-1/2" diameter and is recommended for use when reducing the backset on a door from 2-3/4" to 2-1/8". The 3-1/2" diameter of the 8865C, covered the unpainted area nicely. The 8860C with it's 1-1/4" inside diameter hole, was small enough to allow the 2" escutcheon of the LaGard 2200 to cover it nicely.

Of course, I had to use longer 8-32 screws to hold the whole arrangement to the face of the safe's door, but as you can see from illustration #3, it made a neat "stack," solving the problem which allowed us to deliver the safe in a timely manner.

Tim Fiorini,  
Pennsylvania

**HPC Pistol Pick Winner:**  
**A Hot Solution**

During the winter months, I receive a lot of calls from customers with frozen locks on their cars. To solve the problem, I keep a 7.5 oz. can of WD-40 in the truck and use a 12-volt baby bottle warmer to heat the WD-40.



**Illustration 3**

The bottle warmer plugs into my cigarette lighter and on my way to the "lockout," I plug the warmer in. Usually, by the time I arrive at the customer's location, the can is warmed up. When the warmer WD-40 is sprayed into the lock, it thaws the ice bound wafers or pins almost instantly, while lubricating the lock at the same time.

You can purchase a baby bottle warmer in the infants section of most department stores for about \$15.00.



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Continued from page 97

WD-40 alone will generally free up the lock since it will displace the moisture that caused the lock to freeze, but when the lubricant is warmed, it works almost instantly and is practically guaranteed.

Stephen J. Rogacki  
New Jersey

**Sargent & Greenleaf Winner:  
Emergency Spindle Extender**

While fitting a new lock to a Diebold safe, I found that the spindle on the dial was too short for the job that I was doing. I called the shop and had them send me out an extension kit that can be purchased for just such a situation. They sent me the spindle extension that I needed, but it did not have the collar that connects the two pieces.

Since we had to get the customer back in service and it would take a couple of days to have the proper part shipped to us, I came up with the following solution.

Finding an old drive wheel in my "parts" box, I milled the threaded center portion out as a collar, this would join the two spindles together. All I needed at that point was a spare spline key which I also found in my "parts" box.

I screwed each portion of spindle about half-way into the collar and secured each with a spline key. It worked great and my customer did not have to wait for a "special order" item to arrive before they could lock up their safe.

Steve Kaschimer,  
Arizona



**Silca Keyblanks Winner:  
A LaSabre Surprise**

A customer called and asked me to make a trunk key for their 1988 Buick LaSabre. Neither the dealer or Buck Roadside, was able to furnish any codes prior to 1990, so I began to remove the glove-box lock so I could obtain four of my six cuts and progress the remaining two.

Imagine my surprise when I found that the glove box lock on this vehicle has all six wafers and a side-bar. You can recognize this side bar glove box lock immediately, because it does not turn with the key but slides to the left to lock and the right to unlock. Since I was lucky enough to find the glove box unlocked, here's how I obtained my key.

Remove the two screws that hold the entire lock mechanism in the glove box door. The front of the lock is held onto the back of the case by two pressed through, plastic clips which open in four directions. If you try to close the clip with needle-nose pliers, you can break the tip and you're only closing two of the four "legs".

Find a keyblank (a B-10 for instance) that has a small hole in the head that will not quite fit down over the end of the retainer. Slide the hole of the key over the four-pronged clip and as the legs come together, continue pushing downward until the retainer enters the back of the lock case. Repeat with the other three retainers.

Now remove the cylinder. Rake the wafers while depressing the slide bar, decode the cylinder and cut a new key. As you reassemble the lock, remember to pull down on the latch so you can insert the cylinder. As the lock slides back into the lock, the undamaged clips will snap back into place retaining the lock as they were intended to.

William T. Allgood  
South Carolina

[Editor's Note: William's "discovery" may seem like "old-hat" to a lot of locksmiths that read this tip and think to themselves: "Shoot, everybody knows that!". What many of us tend to lose sight of is, there are new locksmiths coming into the trade everyday that are still trying to get "familiar" with the old tricks that have become second nature to many of us. So, on behalf of the "new" 'smiths that haven't heard about it, and some of the older 'smiths that might have forgotten, I want to thank William for sharing' his discovery with us.]

**Major Manufacturing Winner  
Salvage Yard Treasures**

After completing some auto lock work for a local salvage yard, I took the opportunity to do a "little looking" around the yard. I came across several old ambulance bodies laying in one corner and I began looking for anything that I might be able to use in my service van.

Scrounging around inside one of the bodies, I opened a compartment door and found a 1,000 watt inverter! After talking to the owner of the salvage yard, we agreed that the work I had done that day (about \$100. worth) would pay for the inverter.

I pulled the inverter, tested it and installed it in my service van. It's a good, economical power source.

If you are just starting out or are looking to save money on equipment, your local salvage yards are not only a good source for needed parts and the occasional service job, but can, on occasion, provide some needed piece of equipment at a good price!

So the next time you're in the local "junk" yard, do a little scrounging around - it could be time well spent.

Joe Higgs,  
N. Carolina

**Sieveling GM E-Z Pull Wheel Puller  
Winner:**

**Transponder Key Quick Fix**

Transponder keys are becoming quite prevalent throughout the car industry in Europe, and will apparently gain in popularity in the U.S. as well. This tip concerns the servicing of one of these units when a key has been broken and the proper blank or equipment to re-program the new key is not available.

One of our locksmiths was out working and had to deal with a broken





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transponder key. He chose this alternative as a temporary repair to get the customer on the road.

Utilizing both halves of the broken key, the locksmith duplicated the key on a compatible key blank. He then taped the broken bow of the transponder key onto the key that he had duplicated without a transponder bow on it. This allowed the vehicle - a Fiat Punto - to be started and moved either to the dealer for servicing or to the locksmith shop for repair.

Our shop has used this procedure in two separate instances now, and I see no reason at this point, that it would not work throughout the range of transponder keys.

As you may have noticed, the new transponder keys incorporate very large bows, which is understandable since the bows contain a portion of the electronics to make this type of system workable. However, this large bow gives the vehicle owner more leverage when turning the key and I believe that will result in more broken keys in the future.

George Watts,  
London

*Pro Lock Professional Pick Set  
Winner:*

#### **Ford Speed Impressioning**

I have found a quick way to impression a Ford 5 pin lock. I think beginners as well as more experienced locksmiths will find this handy.

First, cut number two depths in all five spaces. Dress the cuts with a fine file and put the key in the lock.

Using a small pair of Vise-Grips clamped to the bow of the key, gently bump the key to the left and then to the right.

Remove the key and check for marks. Anywhere a mark shows, take that space down to a number four cut. Re-insert key and turn with Vise-Grips. If necessary, increase turning pressure until key turns lock. Be careful not to break key.

When lock turns, remove blank and check for more marks. Dress those down with a file until the key turns easily and smoothly in the lock and you're done.

I have found that many one, two and three depths will pass on a two cut and many three, four and five depths will pass on a four cut.

John M. George,  
California

*[Editor's Note: I have encountered Ford locks where John's tip will work quickly and easily. However, I feel that I must caution anyone who tries John's tip to use a very light touch and do not use excessive force. I have known of Ford cylinders (especially the cast pot-metal ignition cylinders) that have literally been destroyed by an overly aggressive approach to impressioning. I can state unequivocally, that I have had to replace several Ford ignitions when I became a little over-enthusiastic while trying to impression the cylinders. On a strictly personal level, I prefer working with one-and-a-half, two-and-a-half, three-and-a-half and four-and-a-half depths. Whether or not that approach is for everyone, will be dictated by personal preference and whether they use a file, a code machine or a clipper to impression with. thanks for the tip, John!]*

#### **Sieveking Key Blank Manual Winner: Pivot Hinge Door Repair**

A recent request for service involved the complaint that "our back door doesn't close right." This was followed by the request to "Check it out while you're here, will you?"

After completing the original work the customer had requested, I went to take a look at their back door. It was easy enough to see the problem was the closer. First off, it was an economy closer like those you see for sale in a lot of discount building supply houses. Secondly, it was improperly mounted on the door.

Whoever installed the closer put a very light duty closer on a heavily used, four foot wide door that was probably opened a hundred or more times a day. To compound the problem, the installer had mounted the closer on the header (the door was an out-swing), and tried for a regular arm style mount with the closer arm mounted to the door.

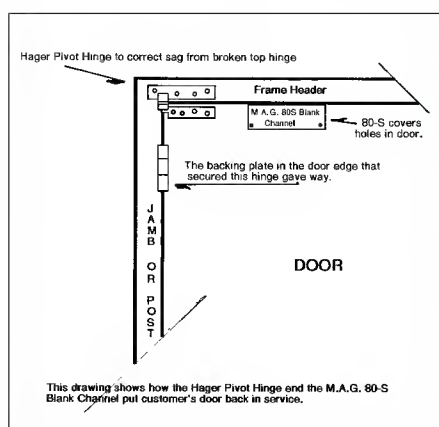
Over a period of time and a couple of strong wind gusts, the 1/4" carriage bolts they had used to secure the arm to the door had pulled through the outer skin of the door and were ready to break through the inner skin. Since the closer had no back check feature, the door had slammed back against the hinge side which had broken the top hinge mount bracket loose from the inside stile of the door.

The hinge problem was corrected with a Hager Pivot Hinge. When I took the old closer off the door, I found that

the damaged area of the door was exactly where the new closer would mount, although the mounting bolts would bracket the damaged area.

Since I didn't want the "tear" (which was about three inches by three inches) to be seen, I elected to use a M. A. G. Engineering Blank Channel (Part #80-S) to cover the area where the old closer arm had torn through the door's skin (See illustration #4).

The M.A.G. channel covered the



**Illustration 4**

area nicely, giving the bolts on the latch side of the closer I installed something extra to "bite." This saved the customer the cost of a new door and didn't look too bad either.

In a recent TNL article ("The Revolving Commercial Hardware Door", November, 1995, page 56,) Steve Gebbia said that if you were going to work on commercial hardware and door repairs, you needed to think of unique approaches to solve your customers problems. I've used a lot of M.A.G. blank channels to cover damage around latches, but this was the first time I used one to repair damage to the top edge of the door.

Jay Christie,  
N. Carolina

**Tech Train Video Winner:  
Swivel Pin Extraction**

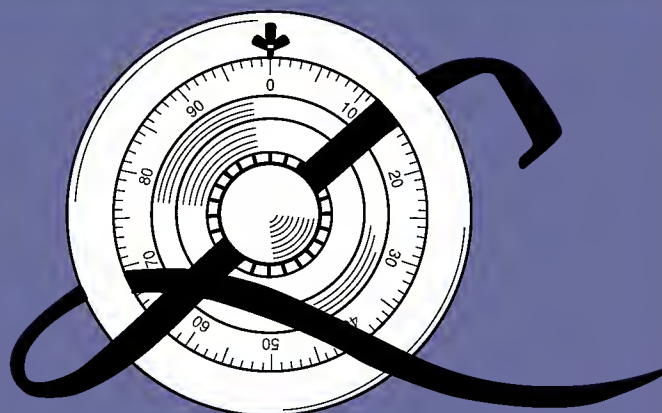
I've seen several types of home-made rigs to remove the swivel pins from GM steering columns, including dent pullers and nuts with bigger nuts and screws.

The best thing I have found is the safe deposit box nose puller. It seems to me that this tool was made for this job. To keep from breaking screws, I went to the local hardware store and bought a half dozen stainless steel cap



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Continued from page 103

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#### Illustration 5

screws (the kind with the Allen head.) The ball bearing in the nose puller would seat in the head of the cap screw so the screw would not turn when I extract the swivel pins.

For those locksmiths that seem to be afraid of working on these columns, it is really not that difficult and there's good money in this type of work.

Steve Myslik,  
E-Mail

[Editor's Note: Steve's right! There is good money in the repair of steering column related lock work like rack gear replacement, etc. However, before any locksmith undertakes this type of service, they should learn all they can about steering column service procedures. A good place to start is The National Locksmith's "GM Steering Column Service Course by Tom

Mazzone and Tom Seroogy. The cost is only \$95.00 and locksmiths that successfully complete the course get a certificate attesting to their GM Steering Column Certification! Check it out. Y'all heah?

#### Jake's grab bag winners: ID Please

I have been using this "ID" (See Illustration #5) card for about four years now. Wearing it with a photo in a pocket badge holder, gives the bearer credibility with their prospective customers.

Any "Quick-Print" shop can run you off any quantity you might need for yourself or other employees.

I think this "ID" will be even more helpful since Illinois recently passed a Locksmith License Law.

Rodger Long,  
Illinois

#### Electronic Storage

Each month I enter the different Technitips published in The National Locksmith in my computer. I enter the tips on a spreadsheet divided into categories that I find helpful such as: Tools, Safes, Door Hardware, Auto Access, etc. I then list the month that

the tip (or article) appeared along with the page number.

Whenever I have a situation or come across an item I'm not familiar with-or just plain frustrated with, - I can usually find the answer in my computer.

Many times this has come in handy when it comes to opening a specific lock that someone has already spent time and effort to overcome.

Carol Oar  
Oregon

#### A Planer Solution

When I received the job to install door knobs and dead-bolts on an 85 room motel, I knew it would take a lot of time to mortise out each and every face plate and strike mortise.

To speed things up, I purchased a small hand-held wood planer with an adjustable depth blade. After marking the mortise with my chisel, I would set the blade to the depth that I wanted, and a few passes of the planer gave me an even and square hole.

This method also creates fewer problems because of split doors.

Michael A. Collins,  
Idaho

TNL

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# Concealed Rods Made Easy



by  
**Steve Gebbia**  
CML

**New  
Installation?  
Forget it.  
Until now  
that is,  
with the  
redesigned  
NT/Monarch  
18 Series  
exit device.**

## **Concealed Vertical Rods!**

Many locksmiths run when they hear those dreaded words. Servicing these devices is never easy. Replacement is even harder. New installation? Forget it. Until now that is. The redesigned 18 series concealed vertical rod device from NT/Monarch changes all that.

The folks at NT/Monarch have looked at every aspect of servicing and installing these devices from an installer's viewpoint. The changes they made are sure to make your job easier.

### **Adjustments**

The biggest improvement has been a new centerslide assembly (see photograph 1). The centerslide is the heart of a concealed vertical rod device. Its job is to transfer the motion of the touchbar to the vertical rods. The new assembly greatly simplifies the initial adjustment of the vertical rods.



**1. The centerslide assembly is the biggest improvement to the NT/Monarch.**

Its main benefit though, is the time and effort saved adjusting a previously installed device. On most concealed rod devices, adjusting the rods is a time-consuming process. Although this can vary by manufacturer, it usually involves several steps to adjust each rod:

### **Adjusting an existing device ... the other guys ...**

First, remove the top latch assembly from the door and disconnect the top rod from the top latch. Next, rotate the top rod to lengthen or shorten it. Reattach the top rod to the top latch. Then, reattach the top latch to the door. Test the operation of the complete device. Repeat these steps until the top latch operates properly. Once the top rod is adjusted correctly, repeat the same procedure for the lower rod. On some devices, the entire rod assembly - containing top rod and latch, centerslide, bottom rod, and bottom latch - must be completely removed



**2. After removing the trim cover, the adjusting screws can be accessed.**

from the door. If there is not enough clearance above the door, you may have to remove the door from its hinges to remove this assembly!

This is much simpler with the new centerslide. The only tools you will need are a Phillips screwdriver and a small regular screwdriver. You won't even need a ladder!

### **Adjusting an existing device ... NT/Monarch 18 series ...**

It's really quite simple: remove the trim cover over the active end of the device. This is held on with four #8-32 flat-head Phillips screws (see photograph 2). You can now see an oval opening that allows access to the adjusting screws (see photograph 3). Simply push in the top screw and turn to adjust the top rod. (The screw must be pushed in to allow a roll pin to clear a small projection on the back of the centerslide. This prevents the rod adjustment from 'migrating' from your settings) - (see photograph 4). The lower rod is adjusted in the same manner using the lower adjusting screw. Once the proper adjustment is achieved, replace the trim cover and you're done!



**3. Pushing in on the screw allows a roll pin to clear centerstile projection.**



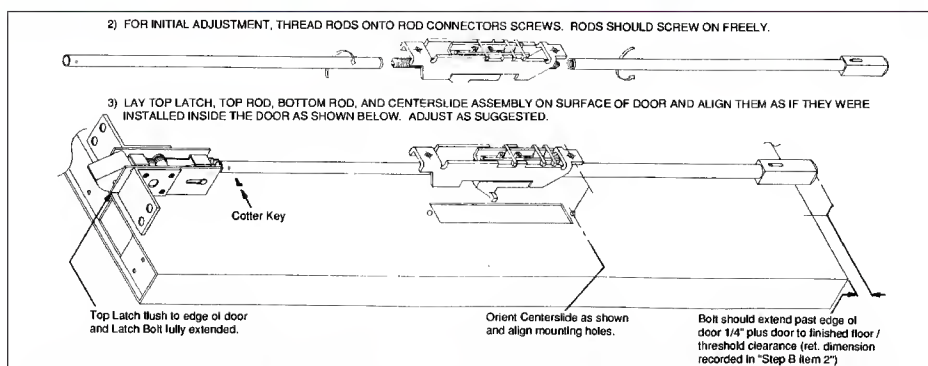
The vertical rods never need to be disconnected or removed. The adjustment is accomplished by rotating the studs to which the rods are attached. By turning the adjusting screw, you are turning the stud. This effectively lengthens or shortens the vertical rod.

#### **Adjusting a new device during installation ...**

So, adjusting an existing device is easy. What about a new install? Is that just as simple? Almost. There are two basic steps. The first is to obtain an approximate adjustment prior to installing the rods in the door. Once installed, the adjustment is fine-tuned.

To properly prepare and reinforce a door for a concealed vertical rod device, the door must be removed from the opening. While the door is still down, and laying flat, you can determine an approximate adjustment. All openings must be prepared and the door properly reinforced before you can begin this procedure.

Start by assembling the rods to the centerslide assembly and the top latch. Place them on the door as though they were installed inside the door. The centerslide should be



#### **4. The centerslide should be aligned with its opening and centerslide mounting holes aligned.**

aligned with its opening and the centerslide mounting holes should be aligned. (see photograph 5).

The top latch case should be flush to the top of the door and the latchbolt should be fully extended. To determine how far the lower bolt should project, add 1/4" to the clearance between the bottom of the door and the finished floor or threshold (depending upon the installation). There should be at least 3/8" adjustment left on both rods. If there isn't, the rods may be lengthened or shortened as required by your door. This usually isn't necessary, though. The standard

device is sized for a 7'-0" tall door.

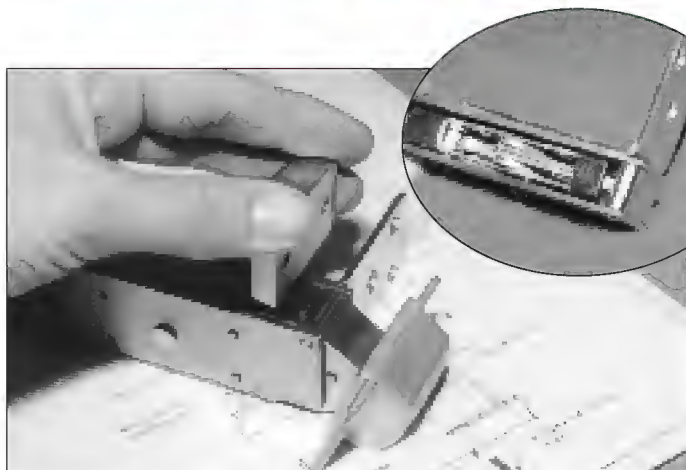
Once you have your initial adjustment you can install the device into the door. Carefully pick up the entire assembly and slide it, lower rod first, into the opening for the top rod. Feed the assembly into the door until the top latch is fully seated in its opening. Be sure to maintain the initial adjustment while installing the device. (Accidentally rotating one or both rods will change your adjustment.)

Finish the installation of the rods by installing top latch and centerslide mounting screws. Also install the bottom bolt guide.

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**5. The top latch is released by a soffit strike.**

To fine-tune your adjustment, the door must be standing upright. Place (2) 2x4 blocks under the door to allow the lower bolt to project fully. The top latch must be fully extended. The purpose of fine-tuning the adjustment is to ensure that the lift tabs engage the centerslide without binding or without excess play. This assures full motion of the rods.

Start by opening a small gap (approximately 1/8") between the upper lift tab and the centerslide by rotating the top adjusting screw either clockwise or counter-clockwise. Then

latch fully extended, lift up on the lower lift tab. The top latch should retract and remain retracted. To release the top latch, use a small screwdriver and press the latch release through the release hole you made near the top of the door. Photos 6 and 7 show how the top latch release operates (the latch is shown removed from the door for clarity).

#### **Top Latch and Soffit Strike**

Another innovation from NT/Monarch is the top latch assembly. Once the door has been prepared and reinforced for the top

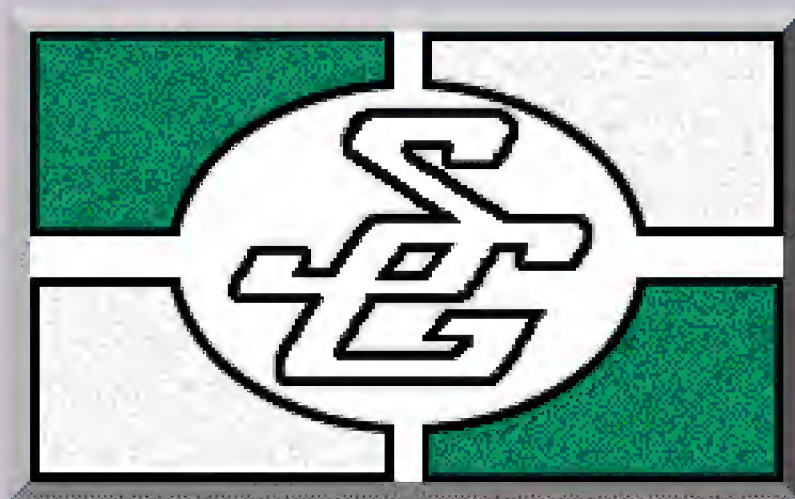
turn the top adjusting screw clockwise until the lift tab just touches the centerslide.

Repeat the same process for the lower lift tab and slide.

Now you can check the device for proper operation. With the door upright and the top

latch, it simply slides into the door and is screwed into the reinforcing plate. There really is no need to make them easier to install. That's not the reason for the new latch. Instead, it was developed to increase the durability of the device.

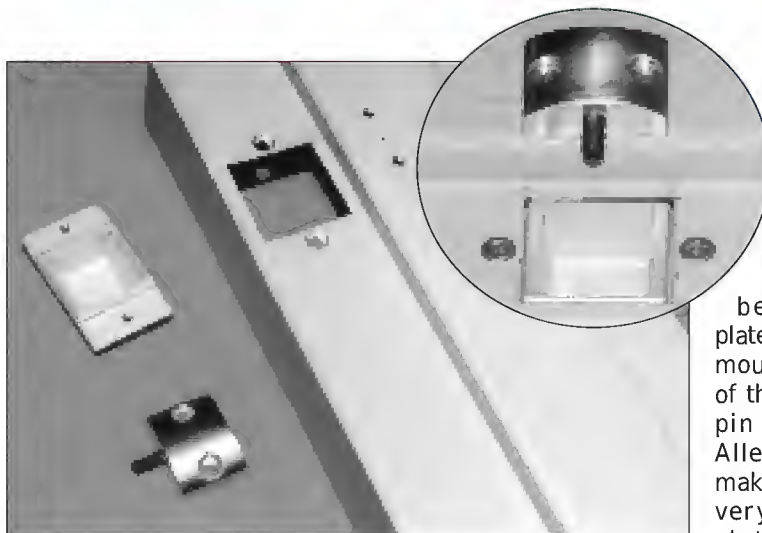
On most vertical rod devices, the top latch is designed to remain retracted while the door is open. (There are exceptions to this for special applications). When the door closes, a trip lever releases the latch and the latch extends allowing the lower rod to drop and the door to lock. This is an important part of the design of these devices. The lower rod is controlled by the top rod and by gravity. If the top rod does not latch in the retracted position, the lower rod will not remain retracted and will prevent the door from closing. The weakest link in this process is the lever that releases the top latch. These are typically flat levers located alongside the latchbolt itself. This complicates the latch mechanism and compounds the effect that dust buildup has in the operation of these latches.



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**6. The soffit strike installed in the header and adjusted with an Allen screw.**

**N**ot all devices have this type of release lever. Many fire-rated devices use a release pin. This pin is mounted to the latch and is depressed by a special strike plate that installs around the main strike plate. This is a much sturdier design and is less prone to damage caused by abuse.

The latch unit in the 18 series device combines the ease of adjustment of the standard style latch with the durability of the soffit release latches. To prevent damage to the

strike plate, a soffit strike is used. The latchbolt is captured inside the soffit itself instead of behind a strike plate. A release pin mounts to the stop of the header. This pin is actually an Allen style screw, making adjustment very simple (see photo-graph 8).

#### **The Lower Bolt**

The lower bolt on this device is rather unique (see photo 9). The bolt is attached to the lower rod with a small roll pin and is spring-loaded. While the rod itself remains rigid, the bolt is free to travel up to 1/2" when fully extended.

Why would you want a lower bolt to be spring-loaded? You certainly wouldn't want the bolt to drag along the floor before dropping into the strike cup - imagine what it would do to the floor! No, that's not the reason for this design.

**T**hink about how the lower rod is meant to operate. The lower rod is physically attached (through the centerslide) to the top rod. If the top rod is raised (to retract the top latch), the lower rod is also raised. When the top rod drops (extending the top latch), the lower rod must drop. Whatever happens to the top rod must happen to the lower rod as well. But this also means that what happens to the lower rod happens to the top rod. What if something is preventing the lower rod from falling? It will prevent the top rod from dropping and the top latch from extending. The door will not lock.

(Remember that, for a vertical rod device, pushing up on the top rod retracts the top latch. When the release lever is tripped by the door closing, gravity pulls the top and bottom rods down - extending the top latch.)

There are a couple of conditions that could prevent the lower rod from extending fully. The first is rust or corrosion of the lower bolt. While possible, this is more apt to occur with surface rod devices. The most likely cause is dirt or other debris in the strike cup. Anything that fills this



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strike cup and prevents the bolt from extending will prevent the door from properly locking. This includes paper or other items placed there by a would-be burglar. By filling the opening with paper, a thief can prevent the bolt from extending and the door would not lock. He now has a means of re-entering the building. This is a favorite practice of recently-fired employees. When servicing these devices, always check the strike cup to make sure it is free of obstructions.

**T**his problem is prevented by making the lower bolt spring-loaded. A properly adjusted lower rod will allow the bolt to extend into its cup 1/4" when locked. If there is an obstruction in the hole, the lower rod will drop fully, the bolt will hit the obstruction and will extend as far as is possible. If the obstruction completely fills the strike cup, the bolt will not be able to enter the cup and the bottom of the door will not be secure. The top latch, however, will still extend fully and the door will be secured by the top latch. While this is not an ideal situation, it is preferable to the alternative: having the top latch only partially engage the top strike - or



**7. The lower locking rod is spring loaded.**

even worse, not latching at all!

#### **Instructions**

For all the installers out there, NT/Monarch has a surprise for you. The instructions are easy to use and are laid out in a logical progression. The information you need is given when you need it and is presented in a clear and concise manner. Unnecessary information has been eliminated.

Other manufacturers try to use one instruction sheet to cover several products. This distracts the installer from the task at hand and can create confusion when it isn't clear which device a particular template or

dimension refers to. You won't find this problem with these devices. It's apparent that the person who created these instructions was intimately familiar with the installation of them. After installing the other guy's device, these instructions are a breath of fresh air.

#### **The Locksmith's Concealed Rod Device ...**

Concealed rod devices are an attractive way to secure an opening. Because the rods are within the door, they are less prone to vandalism. But they can be difficult and time-consuming to service. Installing one on a new door can be downright threatening.

The 18 series concealed devices from NT/Monarch just cut that threat down to size. By examining the product and its installation from an installer's viewpoint, they have eliminated most of the difficulties involved with installing and servicing these devices.

The next time you need a concealed rod device for a medium-to-heavy traffic opening, take a fresh look at NT/Monarch - you'll be pleasantly surprised. **TLN**

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automotive locks for which Curtis currently has code books. There is a full size keyboard which is used to type in the lock code number series, and because it's full size, even I—who have ten thumbs—can use it.

To accommodate holding the keys for cutting, there are four specially designed cassettes. They are identified by color—red, blue, gold and black. There is a display screen located above the keyboard and below the carriage storage area that displays step-by-step instructions.

#### Let's get started:

First, turn the "PC+" on just like any computer, using the correct disk for the make and model you wish to cut. There are a series of disks which are sorted by OEM's.

All of the following will appear on the display screen just above the keyboard: (Photograph 2)

- 1.- "F1-Code, F2-Trace, F3-Depth"— in this example you would type "F1" followed by the enter key.
- 2.- "Enter Key Style:"- Type the Curtis number followed by the enter key.
- 3.- "Code #-" type in the code series number followed by the enter key.

"The proper cassette identifier will then be displayed." - Simply insert the correct cassette in the cutting housing by pushing it straight down in the slot. (Photograph 3) Then simply insert the key you are cutting into the bottom port of the cassette. (Photograph 4, Since we are cutting by code, insert the dummy key in the top port. If you were tracing or duplicating, the original key would be used instead of the dummy key. (For your convenience the dummy key is attached by a chain on

the cutting housing near the cassette so it will always be handy.)

Press the enter key and the cutting process starts. Remember, when cutting automotive keys, there is no need

## Curtis-Cutting Into The Future!

### New computerized key machine cuts by code and duplicates too.

By Ken Pross

Curtis Industries, Inc., is introducing its first computerized code cutter named "PC+." The machine is revolutionary because not only can it cut by code, but it can also trace or allow the operator to set manual independent depths. This article will explain step by step how this new code cutter works.

The "PC+" has an impressive list of features and benefits that make it unique:

\*Buy or lease and get a 3-year warranty on everything. That means you don't need to buy anything else. No replacement cutter wheels, not even new code updates.

\*Cuts to OEM specs +/- .200

\*Carbide cutter wheel will last for thousands of keys and is covered under the 3-year warranty.

\*Automatically receive new automotive code updates for three years - no additional purchases needed.

Let's first familiarize you with the "PC+" (Photograph 1). It has its own computer and comes complete with codes on disks for all



1. The "PC+" automatic code and key cutting duplication machine.



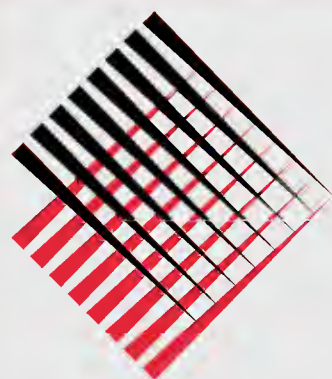
**2. The PC+ has a display screen for prompting instructions.**

to set any depths or spacing, it's all done automatically. The entire cutting housing moves during the cutting process. First, it moves up while making the initial cut and then down, making the finish cut and removing any burrs. If the key being cut is a double-sided key, the screen will display "Remove bottom key and turn over." After turning the key, press enter, and the cutting process continues.

The "PC+" will be able to cut house and commercial keys, too. This will require only three optional cassettes plus disks containing depths for your most popular locks and keys. I believe this makes the "PC+" the most versatile and easiest code cutter available on the market today.

The "PC+" is a Curtis exclusive, and Curtis strongly believes that although this machine makes it easier than ever to cut by code, the machine will not be sold to just anyone. Curtis is committed to selling this computerized code cutter only to professionals such as yourself. Therefore, Curtis will only sell the "PC+" to the type of businesses that would also use the No. 15 code cutter clipper. So, let me remove any questions about who Curtis sees as potential "PC+" customers: locksmiths and car dealerships— not hardware stores and do it-yourself centers. Curtis sees you—the locksmith—as a professional business person who specializes in cutting keys. And we see the "PC+" as a tool only professionals should use.

Curtis' "PC+" is protected by a 3-year warranty against normal wear and defects. During that time there are no additional cam-sets or carriages to buy, even when new model cars come out.



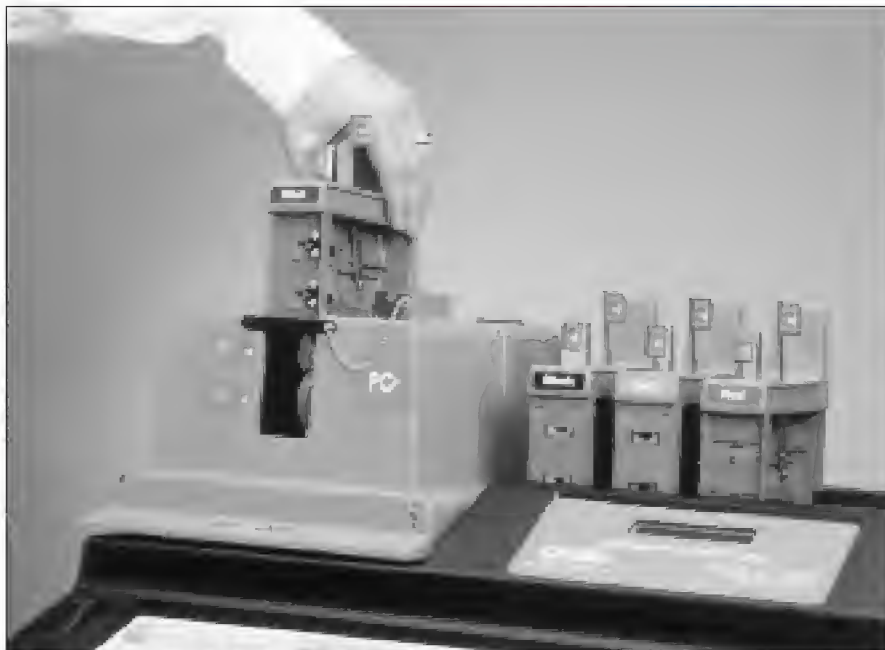
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**3. The cassette is being inserted into the cutting housing.**

If you need more information, call: Curtis' Locksmith Division at 1-800-555-5397, or fax your questions 1-800-867-6020. One of the highly trained locksmith advisers will be happy to answer all your questions. **IRL**

**hes**

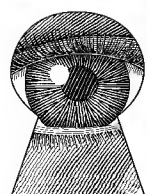
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**4. Key is inserted into the bottom portion of the cassette for cutting.**

# THRU THE KEYHOLE



## A Peek at Movers & Shakers in the Industry

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### Slide Lock Tool Company, Inc.

We don't make the vehicles, we just chase 'em and log 'em!" That's the motto around this long time automotive lockout research facility, pioneering the automotive lockout industry since 1983"

Before 1982, there wasn't a need for fully researched manuals, tools, or accessories, as most every vehicle came with a standard unguarded vertical lock system. The extent of anti-theft protection was a straight pin lock button designed to foil the wire coat hanger.

It was General Motors who was the first to mass-produce a horizontal lock system which happened to stifle both the coat hanger and flat bar type tooling.

With the beginning era of General Motors J body models, professional lockout technicians found themselves in an unusual but obviously profitable position of opening the tougher J models. Hook tools had not yet been made available. With Scott's entrepreneurial nature, he recognized the need to develop a tool that would easily open the troublesome horizontal models. The end result, in 1983, was the invention of the Slide Lock Tool™ and thus the beginning of Slide Lock Tool Company.



Scott Selby  
PRESIDENT/CEO

The Pontiac Phoenix and later the Chevrolet Cavalier were among the first that required the new tool. With over 40,000 Slide Lock Tools produced and sold via direct mail

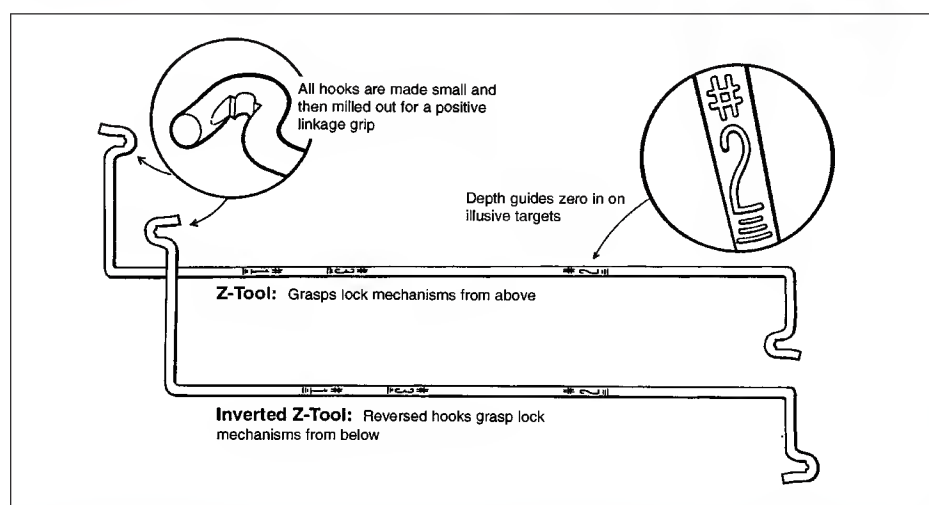
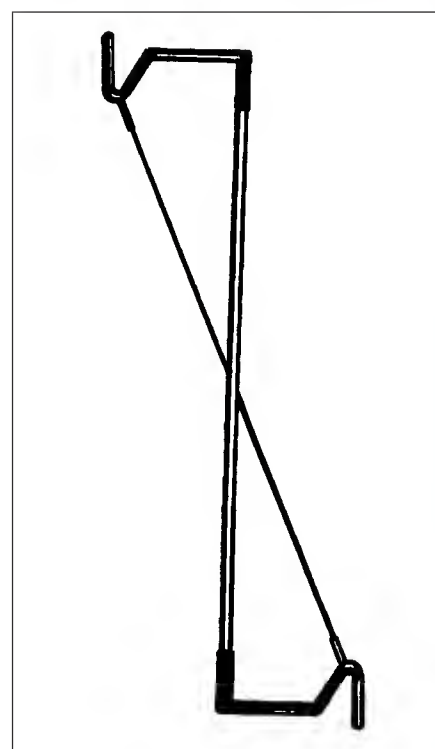
efforts within the first few months of production, the company had established its place amongst the well known tools, such as the originally trade named Fat Albert, now historically known as the Slim Jim. Together, the Slide Lock Tool and Slim Jim could open just about any vehicle produced up to that point in time.

Later, in 1985, the small company took a lot of heat from every direction for being the first to advertise such a device in national trade magazines, such as this one. The problem, at that time, was that no one had ever seen lockout tools published in a trade magazine. Inquisitive calls came from congressman, attorney generals, and even the office of Dean Smith himself, C.E.O. of General Motors. Like they say, pioneers get the arrows before all others who follow the same trail.

Starting in 1986, Scott realized that with some modification and improvements to the original Slide Lock Tool, Both vertical and horizontal vehicles could be safely opened with one tool by simply shortening one of the ends, eliminating the need for flat bar tooling altogether. It didn't matter if the vehicle was a compact, sub-compact or a large luxury vehicle as the geometric shape could reach and

contact lock mechanisms within any door cavity range of size.

After two years of researching the modification, compiling mountains of patent documentation, the unveiling of the high performance Z-Tool took place and went into distribution along with its 75 page 1st edition Z-Tool System Manual. With both a short and





long end, the versatile tool could open every vehicle it came up against, eliminating the need to carry, at that time, 11 different tools. The original Slide Lock Tool was then made obsolete with the introduction.

There was however, yet another step in the industry that had to be pursued. Due to the work load assignments placed on Z-Tool, a higher quality raw material rod was needed, as the off-the-shelf spring steel proved to soften after repeated use. The low carbon material worked fine for coiled objects, such as springs, which distribute the load evenly, but it lacked the strength for straight rod usage which flexes at the middle while moving operative lock mechanisms to their opened positions.

The research efforts resulted in a high risk proposal from metallurgists for a custom produced drawn stainless steel rod which would offer high tensile strength in a thin .162 diameter. The first special order mill run proved to establish a new standard for high strength rod tooling.

Mr. Selby says the cost to produce just one Z-Tool with its high grade raw material, milled out mini-box-hooks and depth guides equates to the cost of producing 10 of the obsolete Slide Lock Tools™. In comparison to look-alike tools, the final product is well worth the extra 6 to 8 dollars the end user pays for the versatile tool. The tool now has a sister, known as the Inverted Z-Tool, which works very much the same except that the hooks are reversed, grasping lock mechanisms from below.

The company's success revolves around constant research. They approach every vehicle with the intention of keeping the number of tools required to open all vehicles to a minimum. Currently, only nine tools are required to open over 800 models on the roads today. The company is proud of that number as other sets require as many as 30 plus tools. There will always be new models introduced to the showrooms throughout the world, providing a new challenge for the researchers to find the safest, easiest opening solution.

Some market areas produce as much as \$250,000 annual sales with upwards of 20% annual growth. To achieve those figures, the need for simplicity is obvious. Providing versatile, thin yet strong tooling and a polished technical manual are the goals of Slide Lock Tool Company,

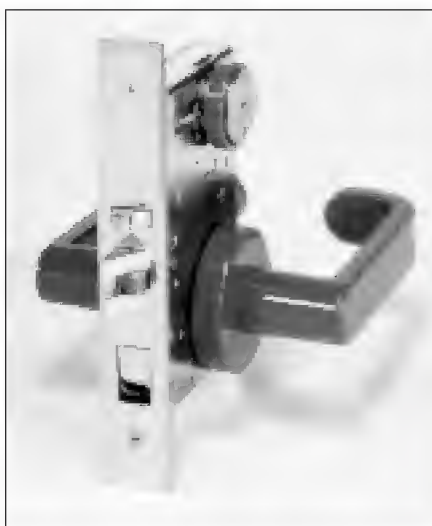
and are the basics required to gain a strong reputation within any given market place.

Need Technical assistance? Contact Scott Selby at 615-577-5936. He loves to talk the fine details of the automotive lockout industry with anyone who wants to learn a trick or two or has a few tricks of their own that are worthy enough to make the next Z-Tool System edition.

For a free full-color demonstrated tool guide, contact Slide Lock Tool Company's customer service department at 1-800-336-8812. Foreign inquires dial 011-615-577-8470.

### **HEWI-for Complete Door Hardware**

In a concerted effort to increase service to locksmiths as well as to distributors and installers, HEWI, Inc. has recently added a series of mortise locks to their already extensive line of door hardware.



The mortise locks, available for all functions, are sold in complete sets with lever handles in three designs and 13 colors. The sets include standard cylinders when required, or may be ordered with Schlage C keyway. They may also be ordered without the cylinder. The lever handles, made of high quality nylon with steel or aluminum/steel cores, are also sold with HEWI's passage and privacy latches, making it possible now to specify HEWI lever handles with the appropriate hardware for all entrances in a building and purchase it all through a single supplier.

HEWI nylon, made by BASF, is always comfortable to handle. It insulates against changes in temperature and static electrical

discharges. The smooth, non-porous surface resists bacteria and is easily cleaned with a damp cloth. These beneficial features of nylon combined with its durability make HEWI lever handles a practical and attractive choice for any application.

In addition, HEWI's line includes products to color coordinate throughout the building, such as pull handles, push and kick plates, bathroom accessories, railing systems, cabinet handles and grab bars.

HEWI, Inc. continues to meet the challenge of providing a growing market with nylon door hardware products by adapting existing products and developing new ones to improve ease of installation and longtime durability on the job. Focusing on the expansion to market areas in Canada, Mexico and South America are also included in product development.

For more information about HEWI Mortise Locks and door hardware, please contact HEWI, Inc., 2851 Old Tree Drive, Lancaster, PA 17603 (717) 293-1313. [www.hewi.com](http://www.hewi.com)



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Service Center  
for the World**

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# Reed Report

I reported a few months ago in this column that I didn't know exactly what I'll be doing, but I promised I would get involved ONLY with people who are deeply committed to the locksmith industry. I am happy to report that I will be working with Steve Young. I can honestly say he cares as much for this industry as I do.

Steve and I have some big plans for the future which will involve new tools, technical help, and in-depth seminars for the trade. Steve feels the same as I do when it comes to associations. The best way to help them grow is through education, and we're going to do everything we can to help. You education chairpersons out there can call me if you're interested in booking a seminar. You can get me at (904) 476-7197. Without the burden of magazine deadlines hanging around my neck, I'll be able to do more now than ever before.

While talking about magazines, I would like to make one more observation. With the addition of Greg Mango, as managing editor of *The National Locksmith*, you the locksmith will be the biggest beneficiary. He's the best in my opinion, and you ex-REPORTER subscribers out there know exactly what I mean. Marc Goldberg has convinced me

## A Message From Bill Reed

that *THE NATIONAL* will continue to be run by technical, know-how-to knowledge, and the addition of Greg Mango proves it. That makes *The National Locksmith* "THE" magazine of the 21st century. For those of you who may not be familiar with Greg, just give him a few months. I guarantee YOU'LL be writing and saying how great he is.

It's exciting times for me right now, and for *The National Locksmith* as well. For the first time ever, *The NATIONAL Locksmith* is the number one magazine in our industry, and I promise you I'm totally convinced it will do nothing but get better. **TRL**



Yours For Better Security,

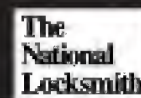
*Bill Reed*  
Bill Reed



Click here  
for more  
information

***Don't panic!***  
***We have Security***  
***Exit Devices.***





# KEY CODES

## Metal Rousseau E2001-E3000

### HPC 1200

Code Card - Not Available  
Cutter - CW1011  
Stop - Shoulder

### Framon

Cut Start - .348"  
Cutter - FC8445  
Cut to cut - .156"  
Spacing Block #1  
Stop - Shoulder

### Key Blanks

Silca - MTR1  
Ilco - MR1

### Spacing

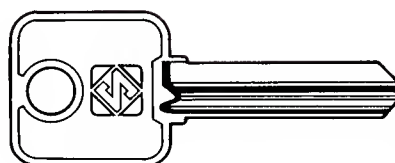
1 - .348"  
2 - .504"  
3 - .660"  
4 - .816"  
5 - .972"

### Depths

1 - .195"  
2 - .210"  
3 - .225"  
4 - .240"  
5 - .255"  
6 - .270"

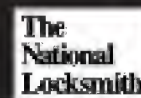
**PSSSST! . . .**

**No 1200CM code card is  
made for this series  
But you can generate  
your own in two minutes!  
See page 117.**



**PROFILE**

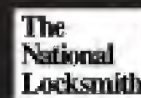
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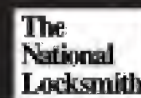
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## Metal Rousseau E2001-E3000

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E2733 23542	E2756 41644	E2779 45321	E2802 53464	E2825 12541	E2848 35155
E2734 55153	E2757 61655	E2780 24464	E2803 25235	E2826 21564	E2849 46455
E2735 32516	E2758 45131	E2781 42245	E2804 42641	E2827 13335	E2850 23111
E2736 13662	E2759 64354	E2782 55131	E2805 24664	E2828 61641	E2851 66232
E2737 42253	E2760 42455	E2783 14564	E2806 15235	E2829 53664	E2852 22346
E2738 26516	E2761 61521	E2784 46245	E2807 26441	E2830 46325	E2853 24332
E2739 56152	E2762 15454	E2785 16621	E2808 52564	E2831 65131	E2854 26113
E2740 35623	E2763 42155	E2786 63564	E2809 65235	E2832 35124	E2855 14446
E2741 16326	E2764 56321	E2787 51345	E2810 41541	E2833 26315	E2856 65232
E2742 65542	E2765 66454	E2788 35131	E2811 23464	E2834 64331	E2857 43513
E2743 52623	E2766 66645	E2789 15464	E2812 25435	E2835 56124	E2858 43646
E2744 14616	E2767 25131	E2790 15655	E2813 55441	E2836 42515	E2859 41632
E2745 33532	E2768 12154	E2791 65661	E2814 64464	E2837 52331	E2860 61313
E2746 32613	E2769 31245	E2792 43564	E2815 53335	E2838 14224	E2861 55346
E2747 26446	E2770 22131	E2793 44265	E2816 64541	E2839 45515	E2862 51432
E2748 26532	E2771 36464	E2794 41661	E2817 15564	E2840 31231	E2863 43313
E2749 61113	E2772 13245	E2795 56464	E2818 34335	E2841 63224	E2864 26646

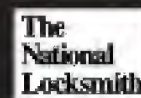
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## Metal Rousseau E2001-E3000

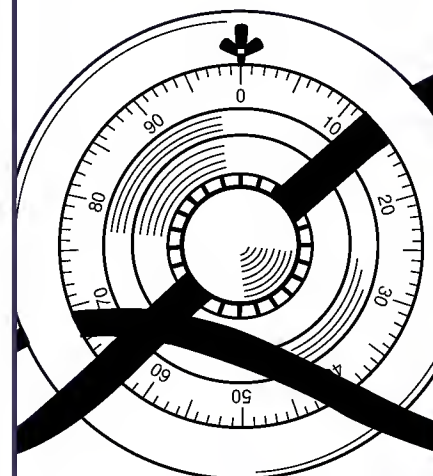
E2865 42432	E2888 34616	E2911 66441	E2934 51515	E2957 36232	E2980 26326
E2866 22413	E2889 26342	E2912 22564	E2935 61231	E2958 16213	E2981 11342
E2867 42346	E2890 66223	E2913 46235	E2936 12324	E2959 32346	E2982 42323
E2868 25652	E2891 62516	E2914 21541	E2937 26225	E2960 14232	E2983 63616
E2869 23613	E2892 36342	E2915 11564	E2938 63331	E2961 14113	E2984 13342
E2870 63326	E2893 64423	E2916 55435	E2939 11324	E2962 46346	E2985 11423
E2871 42162	E2894 55226	E2917 31541	E2940 33125	E2963 61532	E2986 22126
E2872 26323	E2895 56342	E2918 61564	E2941 46231	E2964 22313	E2987 35342
E2873 45516	E2896 44453	E2919 16235	E2942 24624	E2965 65156	E2988 63323
E2874 42362	E2897 56636	E2920 15541	E2943 46125	E2966 43532	E2989 65126
E2875 23523	E2898 16312	E2921 62564	E2944 46331	E2967 46123	E2990 63442
E2876 66226	E2899 35353	E2922 61435	E2945 23424	E2968 62446	E2991 64523
E2877 41142	E2900 61346	E2923 13641	E2946 61455	E2969 23162	E2992 43426
E2878 24223	E2901 34235	E2924 33464	E2947 14111	E2970 13123	E2993 52632
E2879 14126	E2902 15441	E2925 42335	E2948 36364	E2971 14226	E2994 31423
E2880 61342	E2903 63664	E2926 22641	E2949 54654	E2972 65652	E2995 61616
E2881 16223	E2904 44435	E2927 36564	E2950 21655	E2973 24423	E2996 35112
E2882 12126	E2905 65441	E2928 46635	E2951 51313	E2974 36516	E2997 62263
E2883 12342	E2906 66564	E2929 64441	E2952 34232	E2975 61362	E2998 12536
E2884 46323	E2907 43335	E2930 25124	E2953 44346	E2976 11223	E2999 51112
E2885 42516	E2908 46441	E2931 25315	E2954 63332	E2977 24616	E3000 23163
E2886 55342	E2909 45464	E2932 46131	E2955 52613	E2978 45142	
E2887 43323	E2910 36235	E2933 34224	E2956 63256	E2979 44223	

**TNL**

### SECURITY TESTS ANSWER KEY

General Security Exam:	Automotive Security Exam:	Electronic Security Exam:
1. B	1. C	1. C
2. C	2. C	2. A
3. A	3. A	3. B
4. B	4. D	4. B
5. D	5. B	5. A
6. A	6. A	6. C
7. B	7. D	7. A
8. A	8. C	8. D
9. C	9. B	9. B
10. A	10. B	10. A
11. C	11. C	11. C
12. A	12. B	12. A
13. A	13. A	13. D
14. A	14. B	14. A
15. B	15. C	15. A
16. C	16. A	16. B
17. B	17. A	17. A
18. B	18. B	18. A
19. C	19. A	19. A
20. A	20. B	20. B
21. D	21. A	21. A
22. B	22. B	22. B
23. C	23. D	23. B
24. A	24. B	24. A
25. A,B,C &D	25. C	25. B

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# TEST DRIVE



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## RYTAN'S RY100



**PRODUCT:** The Rytan RY100 is a semi-automatic key duplicating machine. Retail price of the unit is \$1,199.00, but Rytan has been running what it refers to as "Recession Busters" pricing. It has lowered the price from \$1,199.00 to \$799.00. No, that's not a mistake. The \$799.00 price is good through May of 1996. The RY100 is available only through distributors, however replacement parts can be purchased directly from Rytan. For a list of current Rytan distributors, contact Rytan Inc., at 1-800-447-9826.

**FEATURES:** The machines base and carriage is a solid cast design, covered with a gray epoxy paint finish. The base of the machine is drilled and tapped with 1/2" - 13 thread to secure to a bench top. This is especially important when mounting the machine in a service vehicle. Carriage movement is driven by a full motion lever shaft via steel linkages rather than gears. Rytan claims this eliminates problems in the movement of the carriage. The carriage will travel a full 1-5/8". Vice jaws are 5"

apart, which will not only hold long blade keys, but keys with large heads as well. The spring loaded top jaws of the vice are reversible and feature a unique quick-change step vice jaw. This design allows you to position the top and bottom jaws together in any configuration for a perfect fit.

The spring loaded key gauge will not only shoulder and tip gauge, but it can gauge BEST style keys without additional inserts or special adapters as well.

The large diameter cutter blade is belt driven by a smooth fan cooled heavy duty 115 Volt A.C. motor, that will operate on a 500 watt REDI-LINE generator right out of the box.

**COMMENTS AND SUGGESTIONS:** This is a very nice duplication machine. Carriage movement is very smooth while key duplication is swift and accurate, even when using nickle silver blanks. Little vibration was felt while duplicating the keys. The wide carriage and key gauge design are the exceptional features of the machine. I

can't say enough about the ability to insert and cut extra long key blades with large bows effortlessly. This is where many other key duplication machines fail.

The only negative comment I have about the RY100 is that the carriage release is semi awkward. It just may have been the shape of the release handle, I don't know. It wasn't difficult to get use to, it just felt awkward at first.

Overall this is a very good machine. Several accessories are available such as: auxiliary lamp; wire brush kit - which I would recommend; key ring adapter, which keeps the customers key ring or key case away from the machine housing; key gauge protector, to prevent accidentally cutting the key gauge; slotter kit to cut safe deposit keys and the like, as well as several other options. A complete line of replacement parts are also available.

There are a lot of good semi-automatic key duplication machines on the market, and is usually the case, to get quality you must pay for it. At \$799.00, you will be hard pressed to find a better quality machine for the price. **TNL**



### DESCRIPTION:

Rytan RY100 Semi-Automatic Duplication Machine

### COMMENTS:

Smooth, Swift, Accurate and very affordable

### TEST DRIVE RESULTS:

The low price for such a feature packed machine, have to place it at the top of your list of considerations.